

TRANSPORTATION

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FINDINGS AND RECOMMENDATIONS

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TRANSPORTATION 2000

PHASE I FINAL REPORT

RECOMMENDATIONS AND SUMMARY OF FINDINGS

Approved by:
The Transportation 2000 Steering Committee
on March 6, 1985

Approved by:
The Santa Clara County Transit District Board of Supervisors
on March 26, 1985

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Vice Chairperson, City of San Jose
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March 1985

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Submitted by Barton-Aschman Associates, Inc.;
Technical Consultant



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OVERVIEW OF PROJECT

Santa Clara County today faces a severe transportation problem brought on by rapid employment growth and lagging transportation improvements. The result is peak hour congestion throughout the County which threatens our quality of life and the economic vitality of the Valley.

The last comprehensive transportation plan for the County (the Santa Clara Valley Corridor Evaluation) was completed over 5 years ago. Most of the projects in that plan are now underway or soon will be. That plan also looked only to the needs in 1990 and growth in fact has already exceeded many of the earlier projects.

Transportation 2000 was established last year to create a new comprehensive plan, reflecting new growth projections and the expected needs in Year 2000. The first phase of the study was designed to:

- decide which transportation corridors have highest priority for major capital investments,
- in high priority corridors, decide which rail or other improvements are the most feasible and cost effective, and
- provide the groundwork for completing the Transportation 2000 Plan in Phase II of the project.

The transportation consulting firm of Barton-Aschman and Associates was hired to perform a detailed evaluation of 6 transportation strategies in 9 transportation corridors (see Fig. 1). In addition, nearly 600 citizens and government officials attended two rounds of public workshops held in November and January. The comments from the public workshops, combined with the results of the technical evaluation, form the basis for the findings and recommendations contained in this report.

KEY FINDINGS

1. Peak hour transportation demands currently exceed available capacity in nearly all corridors in the County. Planned transit projects and the baseline highway improvements (including Measure A and other planned projects) will add capacity (about 15%); but continued growth is expected to exceed those improvements.

Expected employment growth (350,000 more jobs) could add 45% more traffic by 2000 resulting in a deterioration in level of service for most corridors. Even with the baseline improvements, our consultants found that corridors such as U.S. 101, Fremont to Southbay and Rte. 17 would be deficient by as much as 30 to 40%. Fig. 2 summarizes the projected population and employment for the corridors under consideration. Fig. 3 shows travel demand conditions.

Figure - 1

T-2000

Improvement Strategies For Transportation Corridors

CORRIDOR DESCRIPTION	IMPROVEMENT STRATEGIES									
	0	1		2		3	4	5		6
	Baseline Transportation Improvements	TSM/Com-muter Lanes*		Bus Improvements		Caltrain Extension	Light Rail System Expansion	Heavy Rail		More Highways
		Basic	Expanded	Bus System Expansion	Busways			BART	Major Caltrain Upgrade	
1- Guadalupe Corridor	●	●	●	●			●			●
2- Fremont To Southbay Corridor	●	●	●	●			●	●		●
3- US-101 Corridor	●	●	●	●		●	●	●	●	●
4- West Valley Corridor	●	●	●	●	●		●			●
5- I-280 Corridor	●	●	●	●			●			●
6- Rte. 17 Corridor	●	●	●	●	●	●	●			●
7- East San Jose Corridor	●	●	●	●			●			●
8- North-South Corridor	●	●	●	●			●			●
9- South County Corridor	●	●	●	●		●	●			●

* = Basic Transportation Systems Management (TSM) actions are a part of this improvement strategy and also apply to Strategies 2 thru 6

2. A single strategy relying just on transit or highway improvements will not be adequate to satisfy future needs. Instead, an effective strategy must include three elements:
- Part of the need (about a third) can be handled by the planned increase in highway capacity made possible by passage of Measure A.
 - Another third could come from a shift in demand away from current peak congestion times and locations through such actions as increased flextime, reverse commuting and the development of housing close to the worksite.
 - The final third must come from greater use of transit and ridesharing.

Getting more commuters into carpools and vanpools and using both existing and new transit services is an essential step in satisfying projected needs. As a minimum, ridesharing must increase to about 30% of commuters and transit must carry at least 10%. This compares to current rates of about 20% carpooling and 4% in transit.

In summary, our analysis has shown that, to satisfy projected demands countywide on our transportation system, we should establish as an objective that at least 10% of workers commute by transit. This is comparable to nearly 200,000 daily work trips on transit in Year 2000, about 4 times the current usage.

3. The need for additional transit use is most critical in those corridors having the greatest projected deficiencies. In addition, major rail projects will be most cost-effective in some corridors and less so in others. The following summarizes our findings for individual corridors.

The Fremont/Southbay Corridor was the most highly rated corridor in the public workshops. Participants felt that, in addition to the high expected deficiencies, the corridor was important because rail extensions there would connect the Guadalupe Corridor LRT with BART and CalTrain making a workable rail system. There was more support for Light Rail extensions than for a BART extension although both options were similar in cost-effectiveness. From a technical standpoint, the corridor was among the top 4 in terms of need, with deficiencies of 10 to 25%, and rated highly in cost-effectiveness.

The U.S. 101 Corridor was a close second to the Fremont/Southbay Corridor at the public workshops. Participants felt that the corridor had the worst congestion in the County. They also felt that there was an opportunity for a significant improvement to the existing rail line (CalTrain). The technical evaluation supported this assessment revealing deficiencies of up to 50%. Transit options in this corridor proved to be the best in terms of ridership and cost effectiveness.

Fig. 2

NUMBER OF JOBS AND HOUSEHOLDS IN EACH CORRIDOR¹

<u>TRANSPORTATION CORRIDOR</u>	<u>1980 EMPLOYMENT</u>	<u>2000 EMPLOYMENT</u>	<u>EMPL. INCR.</u>	<u>2000 HOUSEHOLDS</u>
1 GUADALUPE	178,000	277,000	56%	309,000
2 FREMONT/ SOUTHBAY ²	111,000	181,000	63%	106,000
3 U.S. 101 ²	266,000	374,000	41%	262,000
4 WEST VALLEY	72,000	114,000	58%	247,000
5 I-280	153,000	204,000	33%	211,000
6 RTE. 17	152,000	209,000	38%	150,000
7 EAST SAN JOSE	67,000	116,000	73%	150,000
8 NORTH - SOUTH	91,000	122,000	34%	105,000
9 SOUTH COUNTY	6,000	24,000	300%	28,000

Notes

¹ The numbers for 1980 Employment, Year 2000 Employment and Households reflect some overlap between corridors

² Santa Clara County only

Fig. 3

TRAVEL DEMAND CHARACTERISTICS

	<u>CORRIDOR</u>	1980	2000
		<u>DEMAND OVER CAPACITY RATIO¹</u>	<u>DEMAND OVER CAPACITY RATIO^{1,2}</u>
1	Guadalupe	1.4 - 1.5	1.03 - 1.24
2.	Fremont-Southbay	1.0 - 1.5	1.07 - 1.24
3.	U.S. 101	1.0 - 1.35	1.08 - 1.53
4.	West Valley	.9	.7 - .85
5.	I - 280	.7 - 1.7	.85 - 1.41
6.	Rte. 17	.9 - 1.16	1.2 - 1.65
7.	East San Jose	.7 - 1.0	.75 - 1.15
8.	North-South	.7 - 1.0	.7 - .9
9.	South County	.6	1.0

Notes:

- 1 - Demand/capacity ratio of 1.0 represents absolute maximum conditions under forced flow operation. A minimum desirable level of service would be .8 - .9. Ratio greater than 1.0 indicates an overflow of traffic from the major freeway or expressway onto local streets.
- 2 - Reflects construction of Measure A and other highway improvements

Despite the planned development of an expressway and Light Rail Transit in the Guadalupe Corridor, that corridor is expected to show significant deficiencies in Year 2000. The corridor was rated highly for further rail improvements in the public workshops, although substantially below the top two corridors. More support was expressed for the northerly extensions to Lockheed and Milpitas (part of Fremont/Southbay) than for the southern extensions including Coyote Valley. That extension was felt to be warranted but only after substantial development had occurred in Coyote Valley.

The Rte. 17 Corridor was rated similarly to the Guadalupe corridor largely because of the opportunity to use the Vasona rail line for either Light Rail or a CalTrain extension. Participants felt that this would be a fairly cost-effective rail option and the technical evaluation supports that assessment. The 17 Corridor also rated highly in projected deficiencies largely because there are few highway improvements planned.

The West Valley Corridor was not highly rated in the public workshops. Participants felt that construction of a freeway in that corridor would satisfy most of the demand and that rail would not be very cost-effective in the corridor. The technical evaluation confirmed those findings. The busway option in this corridor however did prove to be a cost-effective alternative.

The I-280 Corridor was also not highly rated primarily because participants did not consider it a good candidate for rail service. The corridor shows a high deficiency today which will continue. However, the construction of the West Valley Freeway will substantially relieve this corridor.

No other corridors were given substantial support for rail improvements. The others also showed a lower level of need compared to the top corridors. Participants felt that bus service and Commuter Lanes should be pursued in these other corridors.

The consultant evaluation identified the expected capital costs, ridership and cost effectiveness of the rail options for each corridor. The results are summarized in Fig. 4.

4. The highest support at the public workshops was given to those actions and improvements designed to make the individual rail lines operate effectively as a system. Key system connections which participants felt should have a high priority include the LRT/CalTrain connection at the Alma station, a BART/LRT connection in Warm Springs or Milpitas and an LRT/CalTrain connection in Sunnyvale or Mt. View. At each location an intermodal station should be developed providing for convenient transfers between modes.

Fig. 4
SUMMARY EVALUATION
OF RAIL ALTERNATIVES

<u>CORRIDOR</u>	<u>MODE</u>	<u>CAPITAL COST</u>	<u>DAILY TRANSIT TRIPS</u>	<u>ANNUALIZED CAPITAL COST/ TRANSIT TRIP</u>
Guadalupe	LRT - Coyote	\$ 59.1	1,500	\$ 14.17
	LRT - Lockheed	75.9	3,000	9.11
	LRT - Milpitas	38.5	500	27.73
	LRT - Almaden	85.0	1,000	30.58
Fremont/ Southbay*	LRT - Mt. View	328.7	28,000	4.22
	BART - Mt. View	693.0	33,000	7.55
	BART - San Jose	617.4	24,000	9.22
	LRT/BART - Milpitas	484.2	30,000	5.83
U.S. 101*	CalTrain - Coyote	31.8	3,000	4.44
	CalTrain			
	Improvements	86.0	12,000	2.57
	LRT	391.7	41,000	3.42
	BART	662.1	44,000	5.39
	CalTrain-Upgrade	340-683	36,000	3.39-6.87
West Valley	LRT	484.0	16,000	10.88
	LRT - 17 to 87	154.8	4,000	13.92
	Busway	145.0	20,000	3.43
I - 280	LRT	525.8	15,000	12.61
Rte. 17	CalTrain	15.8	1,500	4.44
	LRT - to 85	148.8	9,000	5.95
	LRT - to L.G.	213.3	11,000	6.97
	Busway	62.3	6,000	4.90
East San Jose	LRT - Capitol	294.6	10,000	10.60
	LRT - Alum Rock	160.5	6,000	9.62
North-South	LRT	313.9	8,000	14.11
South County	CalTrain	52.5	500	43.92
	LRT	337.8	2,000	60.75

*NOTE:

Cost and ridership data reflects Santa Clara County portion only

Participants at the workshops also wanted a high priority given to feeder and distribution systems for the rail lines, both Light Rail and CalTrain. They felt that the rail systems could not reach their potential without adequate supporting systems (a fact supported by the technical evaluation). At the residential end a combination of park-and-ride lots and buses was supported while at the job end buses, company vans and better pedestrian provisions were suggested. Of particular importance is the development of an effective distribution system from the Guadalupe Corridor LRT (and future extensions) to the "Silicon Valley" job centers.

5. The consultants also looked at the potential for systemwide improvements in addition to options within individual corridors. Key findings from this analysis are highlighted below.

Transportation Systems Management (TSM), including a network of Commuter Lanes, a 750 bus fleet, CalTrain improvements and other ridesharing actions, was effective in increasing commute trips by transit. TSM actions could increase the transit modal split from about 3% to over 4%. A separate planning effort by the County's Goals Review Committee is identifying and testing new ridesharing strategies which could potentially increase carpooling and vanpooling from about 20% to possibly 30%. These strategies would also help achieve the higher transit use expected with the TSM plan.

A 1500 bus fleet, more than twice the current fleet, attracted more commuters but did not show a significant improvement compared to the TSM plan.

A Countywide LRT System, about a 150 mile network, attracted substantial ridership, although about half the increase was drawn from bus riders. Total systems ridership for such a plan was about 290,000 daily, equivalent to nearly 6% of all work trips. The capital cost might approach \$3,000,000,000 however.

None of the system options achieved the 10% transit objective, although they did show potential for nearly doubling the current modal split. This shortfall is due in part to the lower propensity for Santa Clara County residents to use transit as a result of the historic reliance on the auto. Our consultants feel that a similar transit system, if located in another area such as Alameda County, could achieve perhaps twice the ridership.

6. Considerable interest was expressed in both the government and public workshops for better Countywide integration of planning efforts. Participants felt that the cities and the County should coordinate transportation and land use plans to better manage the expected growth. They also felt the success of the planned rail system was closely linked to effective and supportive land use and development policies. There was no consensus on how all this might be achieved but there were numerous suggestions ranging from charging for parking to establishing a regional planning agency. Participants felt strongly however that the issue must continue to be discussed and solutions found.

In terms of the technical evaluation of transit options, our consultants found that major Countywide transit investments cannot achieve the 10% transit objective without a significant change in the propensity of Santa Clara County residents to use transit. This change could come in part from actions which might be taken by cities, developers and employers to better support transit usage. Such actions might include mixed land use, joint development projects, higher density residential projects along rail lines, reduced parking requirements at job sites, employer subsidies of transit fares, stronger mitigation measures on new development and many other possibilities.

In summary, we have found that modified land use and transportation policies by cities, developers and employers are not only desirable, but essential, if the transit, and also ridesharing, objectives are to be achieved. A failure to achieve these objectives will potentially lead to longer peak congestion periods, continued overflow of traffic onto residential streets, or a failure to reach projected economic growth.

7. The first phase of Transportation 2000 looked primarily at Countywide peak hour demands on the transportation system and on the effectiveness of various rail options in the nine corridors. This has allowed us to identify the priority corridors for rail improvements and the necessary supporting actions for an effective rail system. More planning work is needed, however, to augment the rail plan and complete a comprehensive Year 2000 transportation plan.

Phase II of Transportation 2000 would complete the plan. This phase would focus more on the total transportation system than on individual corridors (as in Phase I) and would look at trip needs other than just work trips. Key areas of attention could include:

- Bus fleet size and level of service (including possible service restructuring to support the rail plans);
- Land use and economic growth implications of the transit system options and their potential effectiveness;
- Development of financing options and selection of a recommended financing plan;
- Identification of implementation strategies for the transportation plan, including staging of the improvements and supporting actions by cities, employers, developers and others;
- The feasibility, costs and needs associated with additional freeway and expressway improvements.

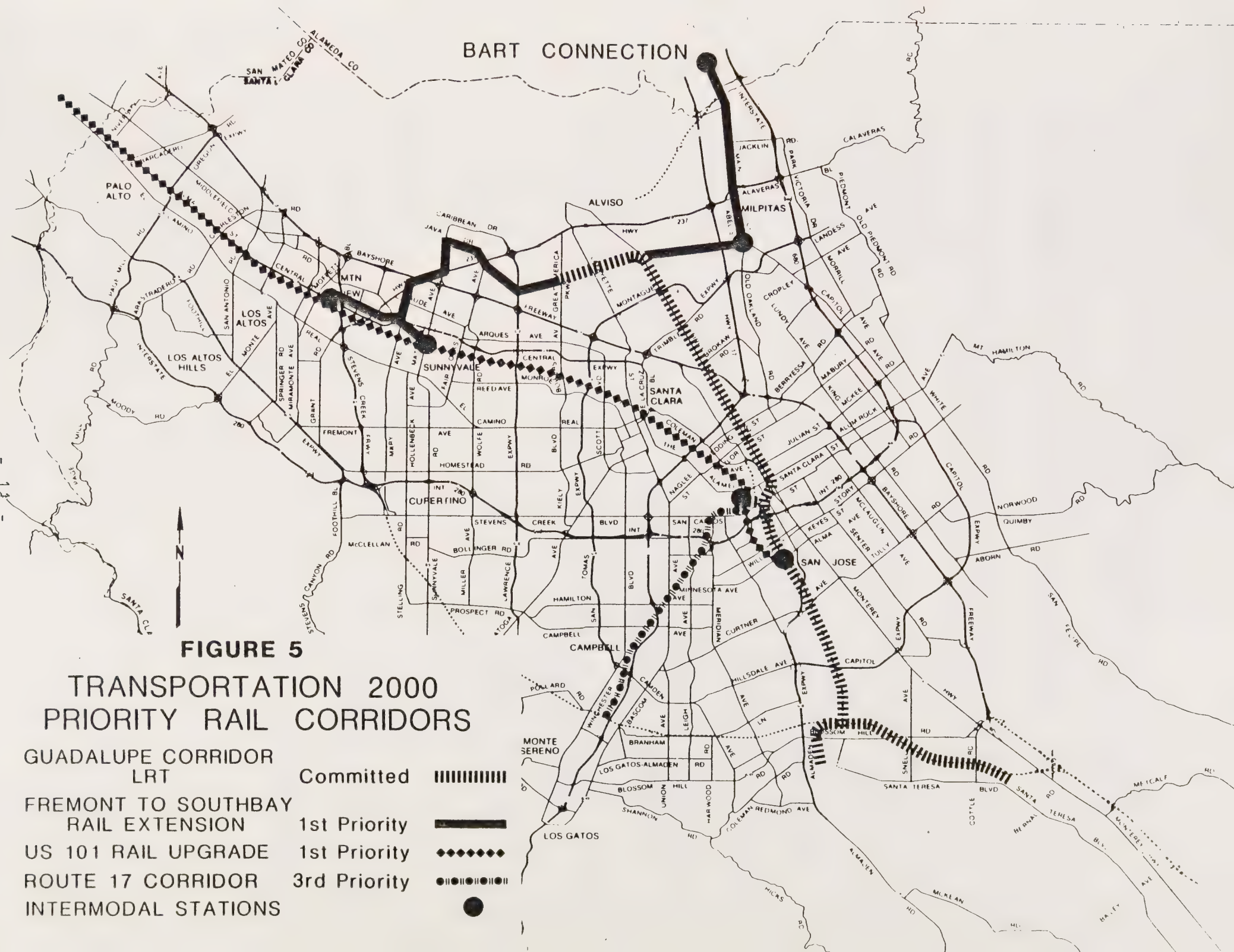
RECOMMENDATIONS

1. The baseline highway improvements (including the Measure A and other projects) are a necessary part of the plan for satisfying future transportation needs. Those projects should proceed expeditiously and should include Commuter Lanes where operationally feasible.
2. Transportation Systems Management actions, including ridesharing improvements and Commuter Lanes, are needed in all corridors and should be aggressively pursued. A Countywide strategy should incorporate the recommendations of the Goals Review Committee to meet the target of approximately 30% of commuters using carpools, vanpools, bicycles and other commute alternatives.
3. Trunk line transit improvements capable of attracting 10% of commute trips should be developed in corridors showing the greatest need. The Guadalupe Corridor LRT project is already underway in that corridor. The two corridor rail projects which have been identified in this study as highly effective and should be given equal designation as top priorities are:
 - Fremont/Southbay Corridor - The Santa Clara County preferred alternative, following the Alternatives Analysis/DEIS phase, should be supported for implementation.
 - U.S. 101 Corridor - The County's preferred plan from the current SCR74 Study should be supported.

In addition to the above priority corridors, the Rte. 17 Corridor merits designation as a third priority and warrants further preliminary corridor level study.

Fig. 5 illustrates a rail system which could be developed in the priority corridors. Final modal choices and alignments must await completion of the indicated studies.

4. Direct connections between existing and planned rail systems should be a top priority. The Transit District should proceed with the following projects:
 - The development of the Cahill and Alma stations linking CalTrain and the Guadalupe Corridor LRT. Project planning should include an efficient connection from Cahill to downtown San Jose. The maximum number of trains possible should service Alma Street Station within physical and environmental limitations.
 - Detailed planning (as part of next phase of the Fremont/Southbay project) for intermodal stations serving LRT/BART in Warm Springs or Milpitas and LRT/CalTrain in Mt. View or Sunnyvale.



5. Feeder/distribution systems are critical to the success of the rail projects and should be given top priority. The following projects should proceed:
 - Development of a specific feeder/distribution plan for the Guadalupe Corridor LRT, with emphasis in the North First Street and Great America areas,
 - Further study (in the next phase of Transportation 2000) of the need for modified or expanded feeder service in support of the planned rail projects.
6. Supportive land use policies are critical to the success of the planned transportation systems just as an effective transportation plan is critical to a successful development plan. The County and the cities should work more closely together to ensure that future land use and transportation decisions are linked and compatible. As a step in that direction the Transportation 2000 Steering Committee should, in Phase II of the project, join with other community leaders to pursue this issue further leading to a plan of action.
7. The second phase of Transportation 2000 should proceed in order to complete the comprehensive Year 2000 transportation plan. Particular attention should be given in Phase II to the land use and growth implications and trade-offs associated with the transportation system options. Among the elements to be addressed are the financing of the plan, bus fleet size and service plan, future plans for corridors other than those designated for rail and identification of additional highway needs. In the second phase, all system options should be evaluated in detail.

PHASE I
SUMMARY OF RECOMMENDATIONS

	<u>Recommendation</u>	<u>1985 Est. Cost \$ Million</u>	<u>Comments</u>
1.	Complete Baseline highway improvements	\$ 871.7	Funded by Measure A and STIP funds
2.	Implement TSM plan (incl. ridesharing program and Commuter Lanes)	TBD*	Specific strategy to be developed by Goals Review Committee
3.	Develop corridor rail improvements		
	<u>Priority</u> <u>Corridor</u>		
	1 Fremont/ Southbay	221-329 (Min) 693 (Max)	Final budget and plan after next planning phase (AA/DEIS)
	1 U.S. 101	30-86 (Min) 662-683 (Max)	Pending recommendations from SCR74 Study
	3 Rte. 17	148-213	Pending recommendations from preliminary corridor level study
4.	Develop Intermodal Stations		
	a) Cahill and Alma	50.0	Project planning/FEIS about to begin
	b) Warm Springs or Milpitas (BART) and Mt. View or Sunnyvale (CalTrain)	N/A	Costs included in Fremont/South Bay project
5.	Develop feeder/distribution services		
	a) Guadalupe Corridor Feeder Distribution Plan	TBD	Costs to be determined after completion of the plan
	b) Bus feeder system improvements and restructuring	TBD	Cost to be determined in T2000 Phase II
6.	Cities and County pursue strategies for better coordination of land use and transportation		
7.	Pursue Phase II in order to complete the Transportation 2000 plan		Additional costs for system improvements will be determined in Phase II; completion by the end of 1985

* TBD - To be determined

APPENDICES

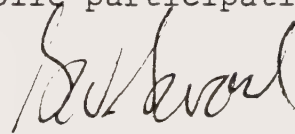
Research & Decisions Corporation

APPENDIX 1

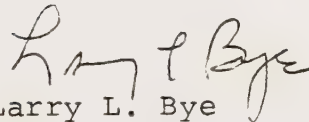
M E M O R A N D U M

TO: Participants in T-2000 Phase I
FROM: Research & Decisions Corporation
RE: Final report on public participation
DATE: April 15, 1985

Attached is the final report on the outcome of the first phase of public participation in T-2000.



Gerald W. Sword
Senior Vice President



Larry L. Bye
Vice President

OVERVIEW OF PUBLIC PARTICIPATION

This memorandum summarizes major findings from the two rounds of public participation workshops in the Transportation 2000 Phase I Study. The purpose of the workshops was to allow for considerable interaction and in-depth discussion among participants on transportation issues and topics. The results of these workshops assisted the Steering Committee and Board of Supervisors in developing their final recommendations. The workshops allowed the public greater access and participation to the study than is normally found in the "standard" public hearing process, providing the basis for greater support and credibility of the study. In addition, a public hearing was held.

The workshops were conducted in late November - early December, 1984 and again in late January, 1985. Both rounds consisted of a total of four workshops; three public workshops and one government workshop. The public workshops were represented by a broad spectrum of community leaders and the general public. The government workshops were represented by councilmembers and key staff from cities, as well as members of the County Planning and Transportation Commissions.

The main feature of each workshop was the small group discussion segment. Participants were randomly grouped together (about 10 per group) and the discussion was led by a volunteer discussion leader. The small size of the groups prompted considerable interaction between participants on a wide range of transportation issues.

The first round of workshops was structured to determine what evaluation criteria (i.e., criteria to evaluate transportation alternatives improvement strategies by) was most important to the public. The top three ranked criteria were:

- satisfaction of travel demand
- environmental impacts
- cost effectiveness

The second round of workshops was structured to determine which transportation corridors should receive priority for new rail transit projects. A short questionnaire was administered to participants in order to determine their preferences and concerns on specific transportation issues. The top three ranked corridors were:

- Fremont/Southbay
- U.S. 101
- Rte. 17

Workshop results closely paralleled the technical findings of the transportation planning consultant. The similar results permitted a general consensus to form on the Phase I recommendations.

The large attendance figures for both rounds of workshops is an indication of the success of the workshop method for public participation. The total attendance for both rounds of workshops numbered 562 (Appendix A).

KEY FINDINGS

The following key findings were based on the viewpoints expressed by workshop participants in both rounds:

1. Participants viewed transportation as a serious problem -- one that ranked at or near the top of most participants' list of concerns about the community.
2. When asked to identify major causes of the problem, participants mentioned factors such as:
 - jobs/housing imbalance. The pace of job creation is outstripping housing availability. Low-density development, high mobility, and the suburban lifestyle make the problem difficult to solve.
 - poor planning. Traffic inducing effects of commercial development are not carefully considered by government.
 - government lacks will to act. Parochialism and competition too often prevent cities from acting even when traffic mitigations are indicated.
 - absence of intergovernmental coordination. The will to act is not enough when problems transcend narrow jurisdictions. Some mechanism for intergovernmental coordination is needed.
 - unwillingness of the public to use the transit system and commuter lanes. The public's mind set needs to change because not enough people are willing to limit solo driving.
 - major employers are not doing enough to restrict parking and encourage ridesharing.
3. While most participants were supportive of Measure A on the November 1984 ballot, they did not believe that it went far enough in solving traffic congestion problems. Although most participants in Round One seemed to be confident of the system's deficiencies, they were unsure whether the "public-at-large" shared their views.
4. The major purpose of the first round of workshops was to gain broad involvement in the determination of criteria to be used in the evaluation of potential improvement strategies. Participants at all four events were asked to rank order a list of 12 prospective evaluation criteria and discuss their attitudes about of the criteria.

The results in order of priority were as follows:

- Satisfaction of travel demand
- Environmental impacts
- Cost-effectiveness
- Economic development and land use impact
- Existing needs first
- Regional transportation system compatibility
- Balance and flexibility
- Funding availability
- Implementation quickly or in stages
- Miscellaneous
- Social impact
- Elderly and handicapped accessibility

5. The major purpose of the second round of workshops was to gain an understanding of the relative priority for rail improvements among the nine corridors.

Participants were asked which corridors, if any, were top priority for major, new rail projects (such as BART, CalTrain, or light rail). The Fremont/South Bay and U.S. 101 corridors were ranked as the top two corridors, with the Route 17 and Guadalupe corridors ranking third and fourth, respectively. The rankings were as follows:

(1)	Fremont/South Bay corridor	(86)*
(2)	U.S. 101 corridor	(73)
(3)	Route 17 corridor	(52)
(4)	Guadalupe corridor	(39)
(5)	West Valley corridor	(19)
(6)	South County corridor	(10)
(7)	I-280 corridor	(8)
(8)	East San Jose corridor	(5)
(9)	North/South corridor	(4)

* These scores are a cumulative index of where each corridor ranked. They are based on percentages of respondents naming the corridor as either first, second, or third priority for new rail projects.

6. The reasons for the high ranking of the Fremont/Southbay and U.S. 101 corridors and the relatively high priority given to the Route 17 and Guadalupe corridors were as follows:
- Participants believed that the need was greatest in these corridors.
 - There was considerable interest in connecting all of the lines in order to maximize convenience and ridership.
 - The effectiveness of the Guadalupe LRT system could be maximized with extension of some type of rail service into these corridors.
 - Rail right-of-ways exist in these corridors.
7. There was division of opinion about an extension of BART service from Fremont to Milpitas in the Fremont/Southbay Corridor*. Those who favored the BART extension believed it provided the best service among the various rail alternatives, afforded a regional transportation tie-in, and advance the objective of "rail around the Bay." Opponents cited primarily cost concerns -- costs of "buy-in" as well as construction and operation. Concern was raised about whether the other BART counties would approve Santa Clara County participation and whether money spent on BART could be better spent improving transportation in other Santa Clara County corridors where the need is equally great.

Many participants also questioned whether population densities would ever justify BART in the county. This concern actually applied to all of the various rail improvement strategies -- not just BART -- considered during the worksessions.

8. In terms of LRT as a potential improvement strategy, most participants saw a role for light rail as one element of the county's future transportation system. However, many participants wanted to wait to see the results of the Guadalupe LRT system before pursuing additional light rail improvements. If BART is to be extended into Santa Clara County, participants want the Guadalupe light rail system to be extended to Milpitas to connect with it.

In addition, an extension of the LRT system to Lockheed Missiles & Space Corporation was also regarded by the majority (57%) as a high-priority improvement.

* See Appendix B for the questionnaire results regarding key findings 7-14.

The only other LRT extensions that were favorably mentioned by a significant number of participants were an extension to Mountain View and along the Vasona Line in the Highway 17 Corridor. The Mountain View extension, in the Fremont/Southbay Corridor, would allow for a connection to CalTrain. The Vasona extension made sense to participants because a rail right-of-way already exists in the corridor. A few participants mentioned extensions in the West Valley and Coyote corridors, but there was little overall interest in these two improvements.

9. There was overwhelming support for improvements in CalTrain service -- improvements such as more and newer trains, station remodeling, better feeder service, and grade separations.
10. Few participants believed extension of CalTrain service to South San Jose or Gilroy to be a high priority. Many participants said that when development warranted it, then extensions to South San Jose or Gilroy should be considered.
11. The vast majority of participants seemed to believe that buses must be an integral part of a balanced and flexible system. However, only one-third of the participants wanted a larger bus fleet as a high priority. This response was due to the misgivings of many about the current level of ridership and service.
12. In terms of needed improvements to compliment new rail systems, there was overwhelming support for feeder/distribution system improvements.
13. Participants in the workshops were asked what should be done in corridors not designated for rail improvements. Many pointed to the importance of bus service in these corridors, although, as noted above, only one-third held a larger bus fleet as a high priority. Commuter lanes and other TSM-based improvement strategies were rated as top priority by fifty-one percent (51%) of participants, and an additional thirty-one percent (31%) rated them as medium priority.
14. Generally speaking, most participants were positively predisposed to additional highway improvements. They were not interested in new right-of-way acquisitions, however. Fifty-one percent (51%) mentioned that additional highway improvements -- beyond those mandated by the recent passage of Measure A -- were high priority.
15. Other non-rail improvements mentioned favorably by participants included automated people-movers, bike lanes, and grade-separated expressways. However, none of these improvements were mentioned frequently enough to suggest significant public interest.

16. Most participants in the workshops indicated that land use and transportation planning need to be more closely tied together in Santa Clara County.
17. Participants were asked if they would favor adding any other improvement strategies to the list. The following responses were given most frequently:
- reverse incentives to discourage solo driving
 - address jobs/housing imbalance; have better planning and government cooperation rather than placing emphasis only on technologies to move people
 - develop air corridors somehow
 - use water corridors for commuting
 - improve existing expressways by adding more lanes; create new expressways
 - ramp metering and other changes to discourage use of regional highways for local trips
 - greater reliance on bicycles
 - move employment "into people's homes"
 - reversible lanes on freeways
18. Participants discussed briefly how agreement could best be reached on improving the transportation system in the county. The most frequent responses were: creation of some type of regional or subregional framework for planning and decision-making, investment of transportation decision-making authority in one body only and using the initiative process to accomplish solutions.
19. Finally, participants were asked what other questions need to be posed as part of the Transportation 2000 process. The following issues were raised by a significant number of respondents:
- What resources are available to pay for rail projects and other improvements?
 - Where have similar transportation problems been solved successfully? Are there models applicable to Santa Clara County?
 - How can commuters be persuaded to rideshare or ride buses and rail systems? How should transportation alternatives be marketed?

- How can employers be motivated to offer incentives to employees who give up solo driving? What else can major employers do to make a difference in the area of transportation?
- How can transportation planning and policy-making be improved so that problems get solved? Should the County get more involved in land use and transportation policy-making? Should there be a new transportation authority at the County level?
- How can bus service be improved and ridership increased?

APPENDIX A

TRANSPORTATION 2000

WORKSHOP ATTENDANCE -- ROUND 1

	<u>Govt.</u>	<u>Community Groups</u>	<u>Educ.</u>	<u>Business</u>	<u>Self or Not stated</u>	<u>Total</u>
Govt. Officials November 28	55	3	0	4	0	62
Sunnyvale November 29	20	34	3	13	15	85
San Jose December 3	19	40	4	21	47	131
South County December 4	6	7	0	4	4	21
TOTAL	100	84	7	42	66	299

TRANSPORTATION 2000

WORKSHOP ATTENDANCE -- ROUND 2

	<u>Private Industry</u>	<u>Press/ Media</u>	<u>Educ.</u>	<u>Comm- nity Orgs.</u>	<u>Elected Govt.</u>	<u>Appointed Govt.</u>	<u>Concerned Staff</u>	<u>Citizens</u>	<u>TOTAL</u>
Govt. Officials January 23	0	0	0	1	19	13	14	0	47
South County January 24	4	0	0	9	0	1	4	8	26
Mid-County January 28	29	1	4	29	3	4	17	26	113
North County January 29	11	0	4	27	3	3	20	8	76
TOTAL	44	1	8	66	25	21	55	42	262

APPENDIX B

ROUND 2

PERCEIVED PRIORITY OF VARIOUS IMPROVEMENT STRATEGIES

	<u>% Saying High- Priority</u>	<u>% Saying Medium- Priority</u>	<u>% Saying Low- Priority</u>		
BART to Santa Clara County	38%	30	32	=	100%
✓LRT extension to BART	59%	29	12	=	100%
LRT extension to Lockheed	57%	30	13	=	100%
CalTrain improvements	55%	38	7	=	100%
CalTrain extensions	28%	34	38	=	100%
Larger bus fleet	33%	37	30	=	100%
✓Feeder system to rail	69%	27	4	=	100%
TSM including Commuter Lanes	51%	31	18	=	100%
Additional hwy. improvements	51%	28	21	=	100%

TRANSPORTATION

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Summary Report

ANALYSIS OF TRANSPORTATION ALTERNATIVES AND TRANSPORTATION CORRIDOR PRIORITIES

Submitted To:
SANTA CLARA COUNTY TRANSPORTATION AGENCY

Prepared By:
Barton-Aschman Associates, Inc.
In Association With
Raymond Kaiser Engineers
Earth Metrics Inc.
Transmetrics

May 1985

SUMMARY REPORT
ANALYSIS OF TRANSPORTATION ALTERNATIVES
AND TRANSPORTATION CORRIDOR PRIORITIES

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1.

INTRODUCTION AND OVERVIEW

Santa Clara County has experienced a tremendous growth in both housing and employment opportunities over the past ten years. Future projections indicate that growth will continue into the 21st century. With the county's freeways and expressways facing ever-increasing congestion and travel delays during the commute periods, traffic has become one of the most important concerns facing South Bay residents and employers. Recognizing the need to develop long-term solutions for dealing with the commute concerns, the Santa Clara County Transportation Study (Transportation 2000) has been designed to develop the technical information necessary for determining strategies and alternatives for resolving these concerns.

This report presents a summary of the alternatives analyzed during the course of the study. It is the culmination of four earlier tasks. Task 1 analyzed existing and future projected travel demands and identified corridors that will experience a deficiency in transportation capacity. Task 2 identified a long list of alternatives for responding to these deficiencies. These consisted of seven modal varieties of transportation investments and 26 options in total. Task 3 focused on the methodology that would be used to evaluate the alternatives and prioritize the corridors. A goals oriented process was selected to ensure that a democratic evaluation would be undertaken. The fourth task measured the performance of each alternative and corridor using the evaluation criteria developed in Task 3. The results of these tasks were reported in five working papers that were prepared and distributed during the course of the project.

TRANSPORTATION CORRIDORS

This project has identified nine corridors within Santa Clara County which accommodate commuter travel demand patterns. As an overview, these corridors are as follows:

1. Guadalupe — Includes north San Jose, downtown San Jose, South San Jose and the Coyote Valley paralleling the Guadalupe and Almaden Expressways.
2. Fremont to Southbay — Includes the geographic areas generally delineated by highway Routes 237, 17, 680 and 101.
3. U.S. 101 — Includes Route 101 and parallel facilities.
4. West Valley — Includes an area generally defined by the existing and proposed Route 85 facility.
5. I-280 -- Includes the area served by I-280 from the Santa Clara County line south and east connecting with I-680.

6. Route 17 -- Includes S.R. 17 and parallel facilities from Los Gatos to Milpitas.
7. East San Jose -- Includes a major concentration of residents in the Berryessa, East San Jose and Evergreen areas.
8. North-South -- Includes several major north-south expressways and arterials which connect the north county industrial areas to the West Valley residential areas.
9. South County -- Includes the Route 101 corridor (and parallel facilities) from Blossom Hill to Gilroy.

ALTERNATIVE TRANSPORTATION MODES

The Transportation 2000 study examined seven modal alternatives including both highway and public transit system improvements. The principal characteristics of the various transportation modes studied are as follows:

Alternative 0 -- Baseline Transportation System

This system consists of the existing, planned and programmed transportation improvements within the County. It includes Measure "A" improvements, the Guadalupe Corridor improvements and programmed widenings of the County expressway system.

Alternative 1 -- Transportation System Management Actions

This alternative examined relatively low cost improvements to increase the bus fleet and commuter rail service frequencies; and to reduce single occupant vehicles through a variety of incentives for ridesharing.

Alternative 2 -- Bus System Improvements

This alternative examined four scenarios for increasing the bus fleet and/or providing exclusive rights-of-way designed to reduce headways and improve area coverage, speed and convenience by bus travel.

Alternative 3 -- Commuter Rail Improvements

The commuter rail improvements consisted of three alternatives for extending the existing CALTRAIN service to North Coyote Valley, to Gilroy, and on the Vasona Line in the West Valley; and one alternative for increasing service frequencies over the existing line to San Francisco.

Alternative 4 -- Light Rail Transit (LRT) Improvements

The LRT improvements considered ten alternatives for expanding the County's LRT system now under design. The various alternatives examined extensions to the Guadalupe system, extensions to BART in Fremont, extensions in the West Valley and Vasona corridors, as well as several other extensions. A county wide LRT system alternative was also examined.

Alternative 5 — BART Extension/Upgraded Commuter Rail

This alternative examined five options for either extending BART in the SP right-of-way on the Peninsula, or from Fremont to downtown San Jose or Mountain View. The alternative also addressed upgrading and electrifying the commuter service currently operating on the SP right-of-way and extending service to Coyote Valley.

Alternative 6 — Highway System Expansion

This alternative examined the expansion of the county's freeway and expressway system to meet Year 2000 demand. It would be accomplished by widenings and, where necessary, double decking freeways.

The various modal alternatives were examined in the context of each corridor as applicable. Figure 1 illustrates which modes were analyzed for each corridor.

Figure - 1

T-2000

Improvement Strategies For Transportation Corridors

CORRIDOR DESCRIPTION	IMPROVEMENT STRATEGIES									
	0	1		2		3	4	5		6
	Baseline Transportation Improvements	TSM/Com-muter Lanes*		Bus Improvements		Caltrain Extension	Light Rail System Expansion	Heavy Rail		More Highways
		Basic	Expanded	Bus System Expansion	Busways			BART	Major Caltrain Upgrade	
1- Guadalupe Corridor	●	●	●	●			●			●
2- Fremont To Southbay Corridor	●	●	●	●			●	●		●
3- US-101 Corridor	●	●	●	●		●	●	●	●	●
4- West Valley Corridor	●	●	●	●	●		●			●
5- I-280 Corridor	●	●	●	●			●			●
6- Rte. 17 Corridor	●	●	●	●	●	●	●			●
7- East San Jose Corridor	●	●	●	●			●			●
8- North-South Corridor	●	●	●	●			●			●
9- South County Corridor	●	●	●	●		●	●			●

* = Basic Transportation Systems Management (TSM) actions are a part of this improvement strategy and also apply to Strategies 2 thru 6

2.

YEAR 2000 TRAVEL DEMANDS

Land-use development and transportation are inseparable partners in the question of travel patterns and demand. This occurs because trip making is a function of the geographic distribution and intensity of land-uses which produce and attract trips, and the relative ease of traveling between two points. This section addresses the future conditions projected for each of these two travel partners.

LAND USE PATTERNS

The urbanized area of Santa Clara County consists of fifteen cities, almost all of which are located in the northern portion of the county. Over the last two decades, these urbanized areas have been growing at a rapid rate with employment increasing more rapidly than population. Retail and commercial development has kept pace with demand to provide the necessary support goods and services.

As a consequence of this growth, Santa Clara County currently faces a "job-housing imbalance" in that the County has more jobs available than the labor force to support them. The net result of this imbalance is the importation of work force from neighboring counties to fill the available jobs. This trend is expected to continue in the future.

Within the county itself, major job centers are concentrated in the northern portion of the county while residential areas are located in the southern part. These existing employment and retail/commercial land use patterns are generally shown in Figure 2. The remaining portion of the urbanized area contains mainly single family residential units.

Over the next 15 years, employment growth in the county is projected to be intense. The National Planning Association in Washington, D.C. has predicted almost 580,000 new jobs in the county, the fourth highest growth in the country. Local economists and the Transportation 2000 Economic Projections Subcommittee believe that employment growth will be more moderate, ranging from 310,000 to 420,000 additional jobs. These more conservative estimates represent labor force increases of between 38 and 52 percent -- and in of themselves are staggering.

Table 1 provides a comparison of county employment projections for individual cities within the county. These projections provide an indication of where new commuters will be attracted. It is also generally believed that these workers will be attracted in greater numbers from adjacent counties, from increases in workers per existing households, and from increases in housing supply within the county.



TABLE 1
EMPLOYMENT PROJECTIONS FOR SANTA CLARA COUNTY

CITY	1980 Employment	% of Total County	Year 2000 Employment	% of Total County	Year 2000 Less 1980	% Increase 1980-2000	% of County Change
CAMPBELL	19,957	2.9%	27,200	2.6%	7,243	36.3%	2.1%
CUPERTINO	42,765	6.1%	56,800	5.5%	14,035	32.8%	4.1%
GILROY	10,014	1.4%	41,800	4.0%	31,786	317.4%	9.3%
LOS ALTOS	8,518	1.2%	9,800	0.9%	1,282	15.1%	0.4%
LOS ALTOS HILLS	2,039	0.3%	2,400	0.2%	361	17.7%	0.1%
LOS GATOS	13,379	1.9%	20,200	1.9%	6,821	51.0%	2.0%
MILPITAS	11,901	1.7%	34,100	3.3%	22,199	186.5%	6.5%
MONTE SERENO	853	0.1%	1,000	0.1%	147	17.2%	.0%
MORGAN HILL	5,795	0.8%	27,800	2.7%	22,005	379.7%	6.4%
MOUNTAIN VIEW	55,278	8.1%	79,400	7.6%	23,122	41.1%	6.7%
PALO ALTO	68,056	9.7%	77,100	7.4%	9,044	13.3%	2.6%
SAN JOSE	229,917	32.9%	370,600	35.6%	140,683	61.2%	41.1%
SANTA CLARA	98,847	14.1%	126,600	12.2%	27,753	28.1%	8.1%
SARATOGA	5,789	0.8%	6,500	0.6%	711	12.3%	0.2%
SUNNYVALE	121,946	17.5%	155,900	15.0%	33,954	27.8%	9.9%
UNINCORPORATED	2,754	0.4%	4,200	0.4%	1,446	52.5%	0.4%
TOTAL	<u>698,808</u>	100.0%	<u>1,041,400</u>	100.0%	342,592	1290.0% (Total)	100.0%

Source: Association of Bay Area Governments, "Projections 83," June 1983.

TRAVEL PROJECTIONS

The net effect of more workers is, logically, more commuters. Using the ABAG Projections 83 estimates of county employment growth, Barton-Aschman developed forecasts of commuter travel growth for each of the county's major transportation corridors. These growth projections are shown in Table 2 and indicate substantial increases in commutation for all corridors as might be expected.

These new workers will not all join the peak hour commute to and from "Silicon Valley." Historical traffic counts indicate that peak period traffic is spreading over more hours of the day as flexible working hours become more prevalent and graveyard and swing shift employment increases. Nevertheless highway congestion will persist even with flexible work hours, swing shifts, and Measure A highway improvements.

Figure 3 illustrates which highways are expected to be congested in Year 2000. The highway improvements include all Measure "A" improvements, i.e. the widening of U.S. 101, SR 237, I-280 and the construction of SR 85 in West Valley Corridor. Also the Guadalupe Expressway will be constructed and widening is planned for Route 17 north of U.S. 101 to the Alameda County line. The corridor volume capacity analysis indicates that even with these improvements, U.S. 101 and the Fremont to South Bay corridors will continue to face serious capacity deficiencies. Although the I-280 corridor will get some relief from the SR 85 extension, it is also expected to face a significant capacity shortfall. Therefore, it is concluded that Measure "A" and other planned highway improvements will help but not eliminate the transportation system capacity deficiencies in the urban areas of Santa Clara County. Additional highway and/or transit improvements will be needed to accommodate the anticipated growth in travel demand.

TABLE 2

COMMUTER TRAVEL GROWTH BETWEEN 1980 AND YEAR 2000

CORRIDOR	LOW AND HIGH RANGE OF COMMUTER* TRAVEL GROWTH
1. Guadalupe Corridor	20,000 to 29,000
2. Fremont to Southbay Corridor	
(a) Fremont to Southbay	7,000 to 17,900
(b) Fremont to San Jose	17,700 to 29,100
3. U.S. 101 Corridor	10,700 to 40,800
4. West Valley Corridor	
(a) Existing Route 85	10,000 to 11,700
(b) West Valley Right-of-Way	
5. I-280 Corridor	6,800 to 28,800
6. Route 17 Corridor	7,200 to 29,100
7. East San Jose Corridor	
(a) North-South Section	21,300 to 26,000
(b) East-West Section	18,600 to 28,800
8. North-South Corridor	6,500 to 17,700
9. South-County Corridor	24,600

Low and high ranges of commuter travel growth reflect the variation in corridor travel demand at different locations along the corridor.



3.

EVALUATION OF CORRIDORS AND TRANSPORTATION INVESTMENTS

Funds for transportation improvements are limited. The environmental and socio-economic consequences and the travel choices provided with each alternative are not all equal. Hence, not all necessary projects can or will be constructed and choices need to be made. Informed decisions require careful evaluation of how one alternative and/or corridor "performs" vis-a-vis another. Further, UMTA guidelines for major capital investments and systems-level alternative analysis require that certain efficiency, equity, threshold demand parameters be determined. The performance comparison of one alternative/corridor to another is facilitated by defining Measures of Effectiveness in response to broad objectives and specific requirements. The measurement is subsequently accomplished by using models (mental, mathematical, or other) to perform the analysis.

MEASURES OF EFFECTIVENESS

Measures of Effectiveness (MOEs) are defined criteria for quantifying the benefits and disbenefits of each alternative. They reflect both broad objectives and specific UMTA-required parameters as discussed above. Cumulatively, the objectives and resulting MOEs will provide decision-makers and the public with information regarding transportation needs and shortfalls, the quality of service provided by alternative technologies, costs for implementation and operation, development and socio-economic impacts, and environmental considerations. A discussion of these objectives and MOEs follows.

Future Travel Needs (Year 2000) are measured by three criteria or MOEs. Daily Transit Trips and Peak Hour Transit Trips have been mathematically modelled. The assumptions used in the modelling process are detailed in a separate technical document to this study, Working Paper 5. The Highway Volume/Capacity MOE was developed in Working Paper 1. Each of these MOEs estimates what the Year 2000 condition will be for each alternative.

Cost Effectiveness criteria measure the capital costs of each alternative on a cumulative and annualized basis with the trip estimations developed through the travel modelling process. The "Net Cost/Trip" is the residual of the "Capital Cost/Transit Trip" plus the "Operation & Maintenance (O & M) Cost/Transit Trip" minus the estimated revenues for the travel mode.

Environmental Impacts were addressed at this stage by three MOEs. The "Use of Sensitive Areas" reflects the exposure of sensitive areas such as residential/school/hospital sites, parks, streams/floodplains/habitats and cultural resources to either construction and operational impacts or actual dedication of land.

The "Noise, Visual or Disruption" MOE reflects the specific impacts each alternative is expected to have on adjacent lands within the corridor. The final MOE in this section, "Reduced Pollutants & Energy Use," focuses on the change each transit use would have in comparison to continued private automobile usage. Each MOE has been given an indicator either as a benefit (+); no substantial change (0); or a potential adverse effect (-). It should be noted that more detailed environmental analysis will occur as the analysis of corridors and alternatives becomes more focused following this general assessment.

The Investment Distribution criteria reflect the vehicle availability, employment, and housing factors of the geographic areas served by each alternative. They have been developed from census tract information and ABAG projections for future land-use development. The "Households Served" includes an area of two miles on either side of the transportation facility. The "Employment Served" includes an area one mile on either side of the facility and the "Cities Served" include the cities within two miles of the proposed facility.

The Existing Travel Needs reports the "Daily Transit Trips (1984)" currently taken within three miles of the proposed facility. It also records the existing "Highway Volume/Capacity" condition as discussed in the previous chapter and documented in Working Paper 1.

The final MOE focuses on the Regional Mobility (2000) each alternative would provide. The number of transit trips for both "Intra-County" and "Inter-County" regional trips are presented. These have been developed for the year 2000 based on the modelling efforts of this study.

By utilizing the defined measures of effectiveness within the broad objectives noted, the decision-maker and public have the capability to assess the implications, benefits and disbenefits of each alternative mode and corridor.

It should be noted that the costs and benefits presented in this report apply only to the transportation system within the Santa Clara County.

CORRIDOR AND ALTERNATIVE PERFORMANCE

The remainder of this chapter presents the performances of the transportation alternatives on a corridor by corridor basis. Each of the nine corridors are discussed individually, as well as a discussion of the various transportation alternatives pertaining to the corridor. The measures of effectiveness (MOEs) are presented in a systematic and tabular format for ease of comparison. Also included with each corridor assessment is an illustration of the physical extent of the various alternatives.

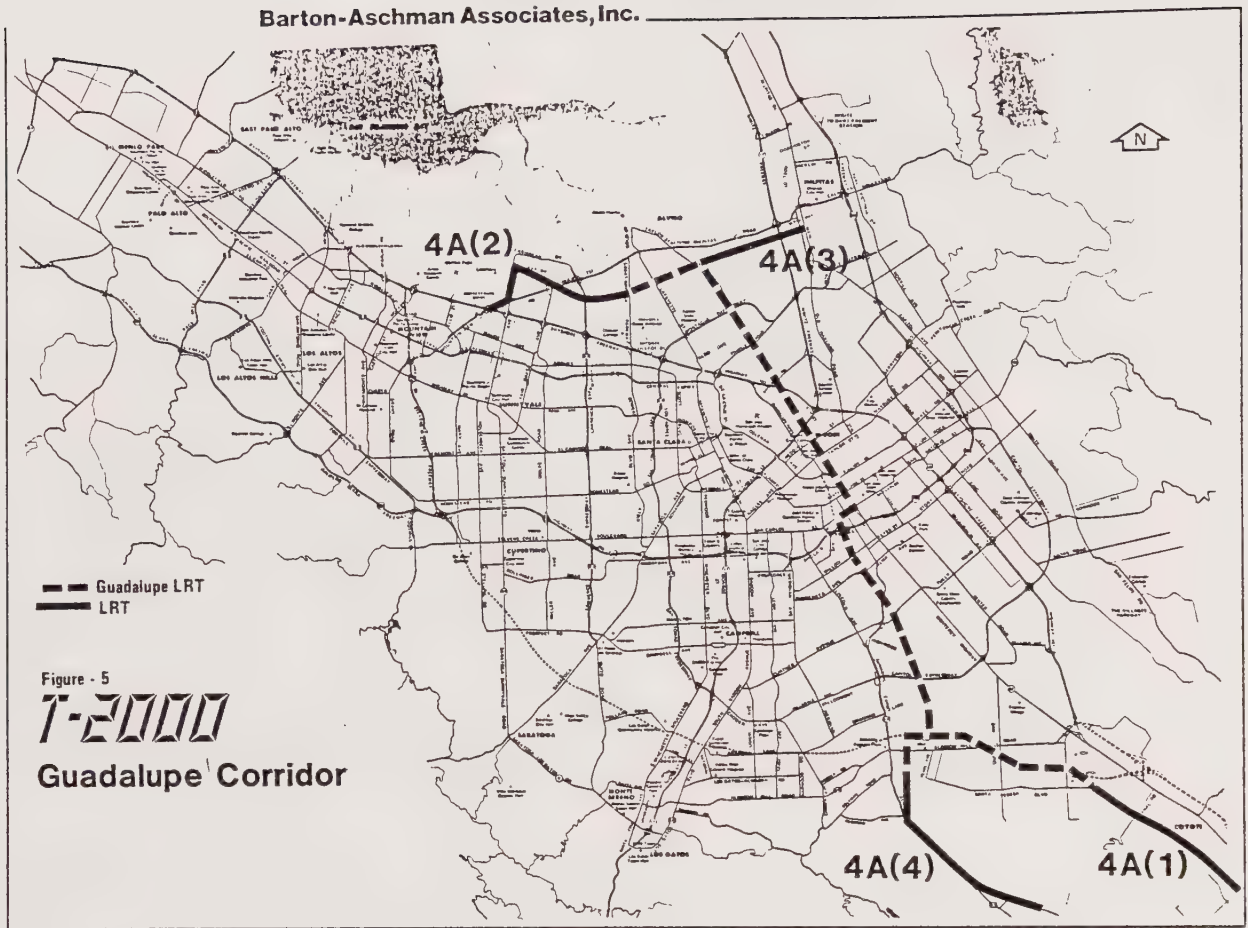


The Guadalupe Corridor includes the fast growing job center in North San Jose and extends to the Coyote Valley in South San Jose. The corridor includes downtown San Jose, the hub of the current transit system and the largest attractor of transit ridership.

Transportation investments include the Guadalupe Freeway which is projected for completion within 5 to 8 years and the county's first Light Rail Transit (LRT) line which will be in full operation by 1989. Four additional transportation investments have been identified for this corridor, all being extensions of the Guadalupe LRT line. These alternative are listed below and illustrated on the next page.

- 4A(1) A south-easterly extension to North Coyote Valley. This line extension would follow Santa Teresa Boulevard to North Coyote Valley and terminate at Bailey Avenue.
- 4A(2) A westerly extension from Great America Parkway to the Lockheed area in Sunnyvale. This line extension would follow Tasman Drive to Fair Oaks Avenue, proceed north on Java Drive to Lockheed, and south on "E" Street terminating north of U.S. 101.
- 4A(3) An easterly extension to Milpitas. This line extension would follow the alignment of the proposed Tasman Drive east of Route 17 to Main Street in Milpitas.
- 4A(4) A southerly extension along Almaden Expressway. The Guadalupe LRT line would be extended south from its proposed terminal near Coleman Road along Almaden Expressway.

All line extensions have been tested with 12 minute service during peak hours and 20 minute service during the midday and evening.



Measure Of Effectiveness

FUTURE TRAVEL NEEDS (2000)

	LRT TO N. COYOTE 4A(1)	LRT TO LOCKHEED 4A(2)	LRT TO MILPITAS 4A(3)	LRT ON ALMADEN EXP 4A(4)
o Daily Transit Trips	1,500	3,000	500	1,000
o Peak Hour Transit Trips	300	600	100	200
o Highway Volume/Capacity	1.0	1.4	1.5	N/A

COST EFFECTIVENESS

o Cumulative Capital Costs	\$ 59.1M	\$ 75.9M	\$ 38.5M	\$ 85.0M
o Capital Cost/Guideway Mile	\$ 14.8M	\$ 19.0M	\$ 15.4M	\$ 22.4M
o Annualized Capital Cost	\$ 6.3M	\$ 8.1M	\$ 4.1M	\$ 9.0M
o Capital Cost/Transit Trip	\$14.17	\$ 9.11	\$27.73	\$30.58
o O & M Cost/Transit Trip	\$ 3.16	\$ 1.58	\$ 5.99	\$ 4.64
o Net Cost/Trip	\$16.46	\$ 9.82	\$32.85	\$34.35

ENVIRONMENTAL IMPACTS

o Use of Sensitive Areas	0	0	0	0
o Noise, Visual or Disruption	-	-	-	-
o Reduced Pollutants & Energy Use	+	+	+	+

INVESTMENT DISTRIBUTION

o Vehicle Availability (1980)	1.73	1.67	2.00	2.08
o Households Served (2000)	9,000	17,000	17,000	25,000
o Employment Served (2000)	27,000	65,000	50,000	4,000
o Employment Served (1980)	4,000	32,000	18,000	2,000
o Cities Served	3	2	2	2

EXISTING TRAVEL NEEDS

o Daily Transit Trips (1984)	49,700	53,500	49,700	49,700
o Highway Volume/Capacity	0.62	1.0-1.7	0.94	N/A

REGIONAL MOBILITY (2000)

o Intra-County Transit Trips	1,500	3,000	500	1,000
o Inter-County Transit Trips	-	-	-	-

LENGTH (MILES)

4.0	4.0	2.5	3.8
-----	-----	-----	-----



The Fremont to Southbay corridor is expected to experience one of the highest rates of employment growth in the county and commensurate increases in commuter travel. Transportation facilities in the corridor include Route 17, I-680, Route 237 and Route 101. Routes 17 and 237 are seriously deficient in capacity today. Commuter lanes have recently been added on 237 and Measure A will fund its upgrading to freeway standards. On Route 17, widening to 8 lanes is planned; but even with these highway improvements the corridor has projected capacity deficiencies of more than 20%.

Four alternatives have been identified by the Fremont to Southbay corridor study as showing potential. They are described below and illustrated on the next page.

- 4B This light rail investment alternative would begin at a Mission Boulevard extension of BART and follow the SP tracks and the extension of Tasman Drive to First Street. This line would then extend west from the Guadalupe LRT line terminus in Santa Clara to the CALTRAIN station in Mountain View.
- 5B In this alternative, the BART line extends from the existing Fremont station along the SP right-of-way to a point south of Route 237. From there the alignment would proceed west to the extended Tasman Drive and connect with the Guadalupe LRT line. The BART line would then turn north to Route 237 and west to a terminal at the Mountain View CALTRAIN station.
- 5C This BART alignment alternative starts at the Fremont BART station and then follows the Western Pacific tracks to a terminus in downtown San Jose.
- 5E This alternative tests a combination of BART extended to Milpitas with LRT continuing to Mountain View as in 4B.

Headways of 7.5 minutes during peak hours have been tested with each of these alternatives.



Measure Of Effectiveness	LRT TO MT VIEW 4B	BART TO MT VIEW 5B	BART TO SAN JOSE 5C	BART TO MILPITAS LRT TO MT VIEW 5E
FUTURE TRAVEL NEEDS (2000)				
o Daily Transit Trips	28,000	33,000	24,000	30,000
o Peak Hour Transit Trips	5,600	6,600	4,800	6,000
o Highway Volume/Capacity	1.4	1.4	1.4	1.4
COST EFFECTIVENESS				
o Cumulative Capital Costs	\$328.7M	\$693.0M	\$617.4M	\$484.2M
o Capital Cost/Guideway Mile	\$ 19.2M	\$ 40.3M	\$ 44.1M	\$ 28.3M
o Annualized Capital Cost	\$ 34.9M	\$ 73.5M	\$ 65.5M	\$ 51.6M
o Capital Cost/Transit Trip	\$ 4.22	\$ 7.55	\$ 9.22	\$ 5.83
o O & M Cost/Transit Trip	\$ 1.14	\$ 2.44	\$ 2.73	\$ 1.63
o Net Cost/Trip	\$ 4.49	\$ 8.27	\$10.31	\$ 6.26
ENVIRONMENTAL IMPACTS				
o Use of Sensitive Areas	0	0	0	0
o Noise, Visual or Disruption	-	-	-	-
o Reduced Pollutants & Energy Use	+	+	+	+
INVESTMENT DISTRIBUTION				
o Vehicle Availability (1980)	1.73	1.74	1.76	1.73
o Households Served (2000)	91,000	102,000	106,000	91,000
o Employment Served (2000)	180,000	195,000	141,000	180,000
o Employment Served (1980)	101,000	101,000	81,000	101,000
o Cities Served	4	5	3	4
EXISTING TRAVEL NEEDS				
o Daily Transit Trips (1984)	17,700	17,000	45,200	17,700
o Highway Volume/Capacity	1.0-1.7	1.0-1.7	1.5	1.0-1.7
REGIONAL MOBILITY (2000)				
o Intra-County Transit Trips	19,000	22,000	15,000	20,000
o Inter-County Transit Trips	9,000	11,000	9,000	10,000
LENGTH (MILES)	17.1	17.2	14.0	17.1

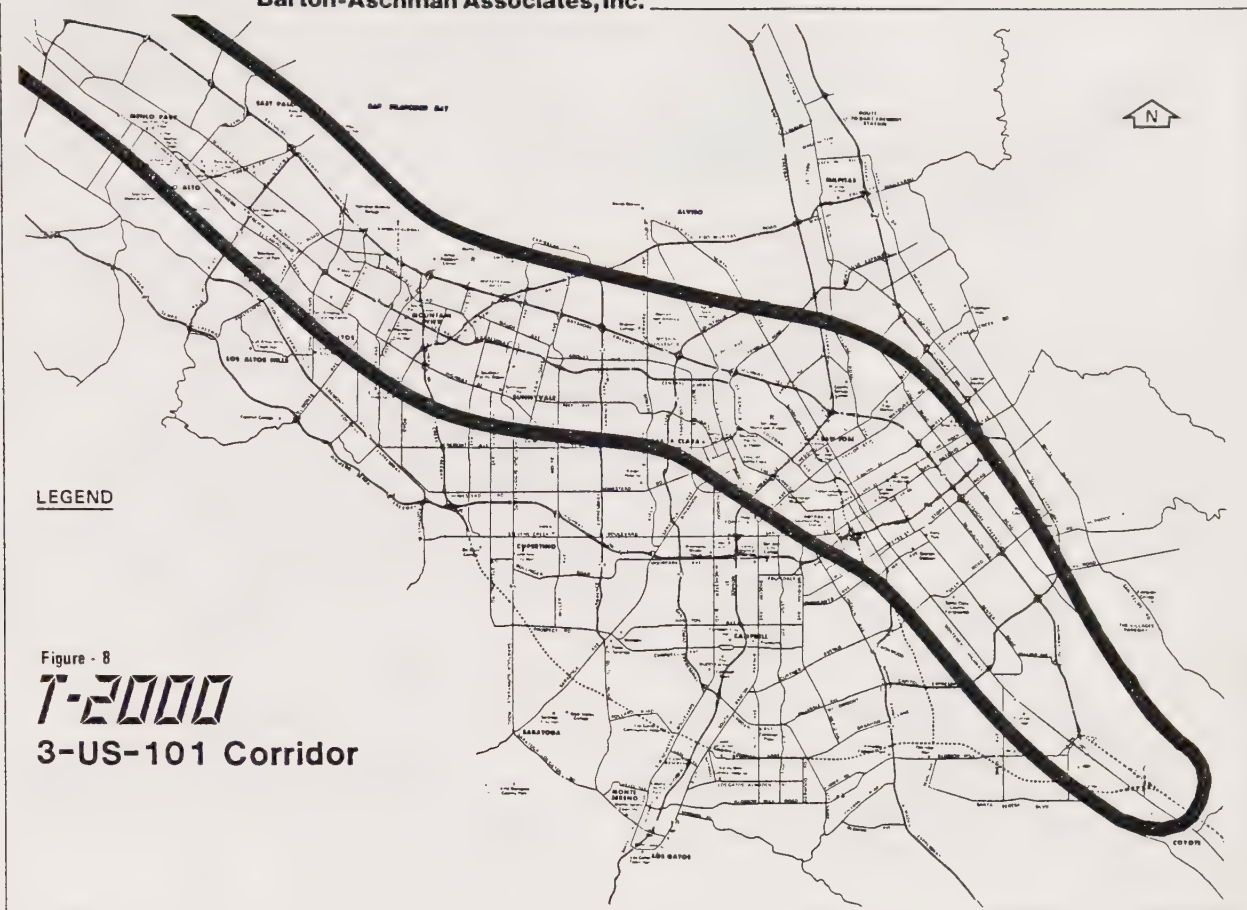
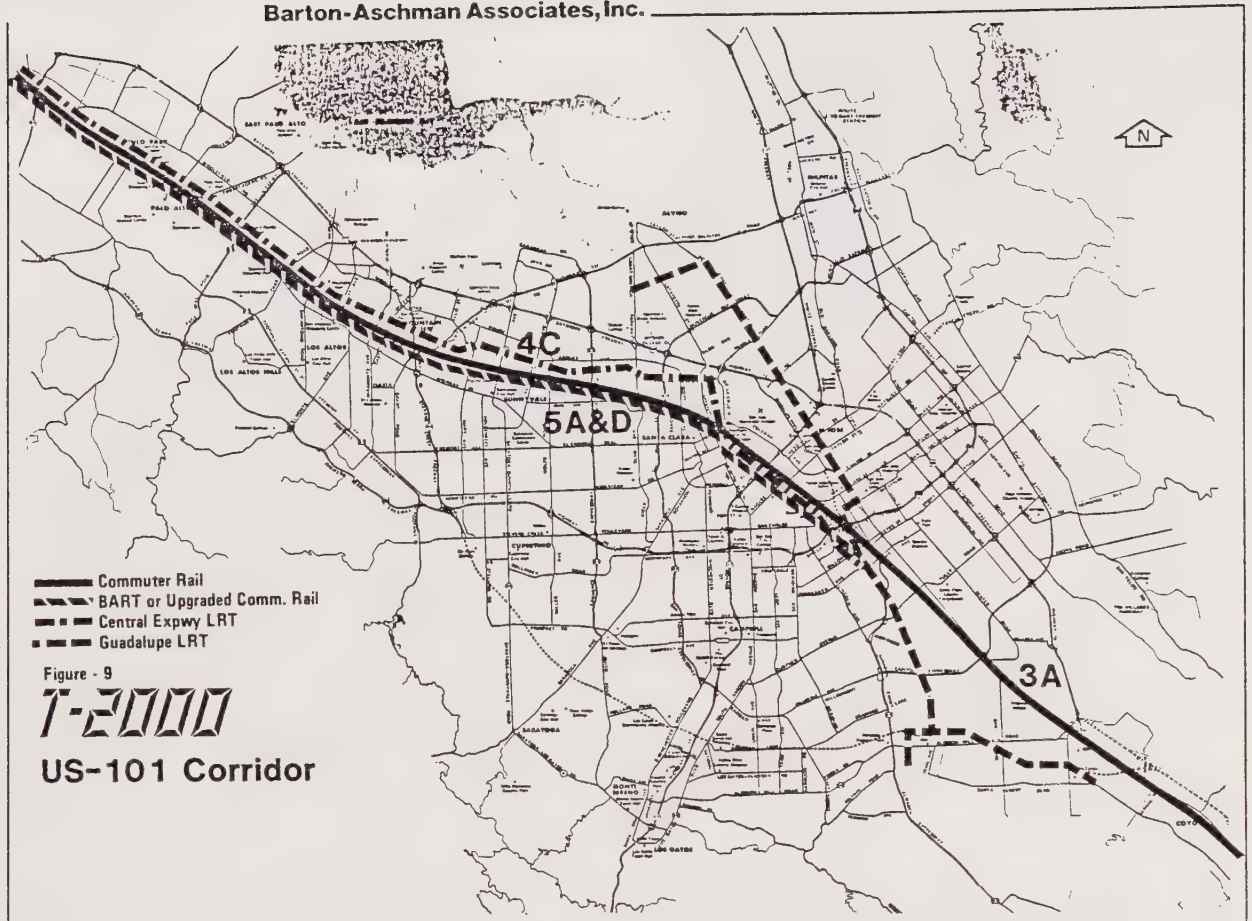


Figure - 8

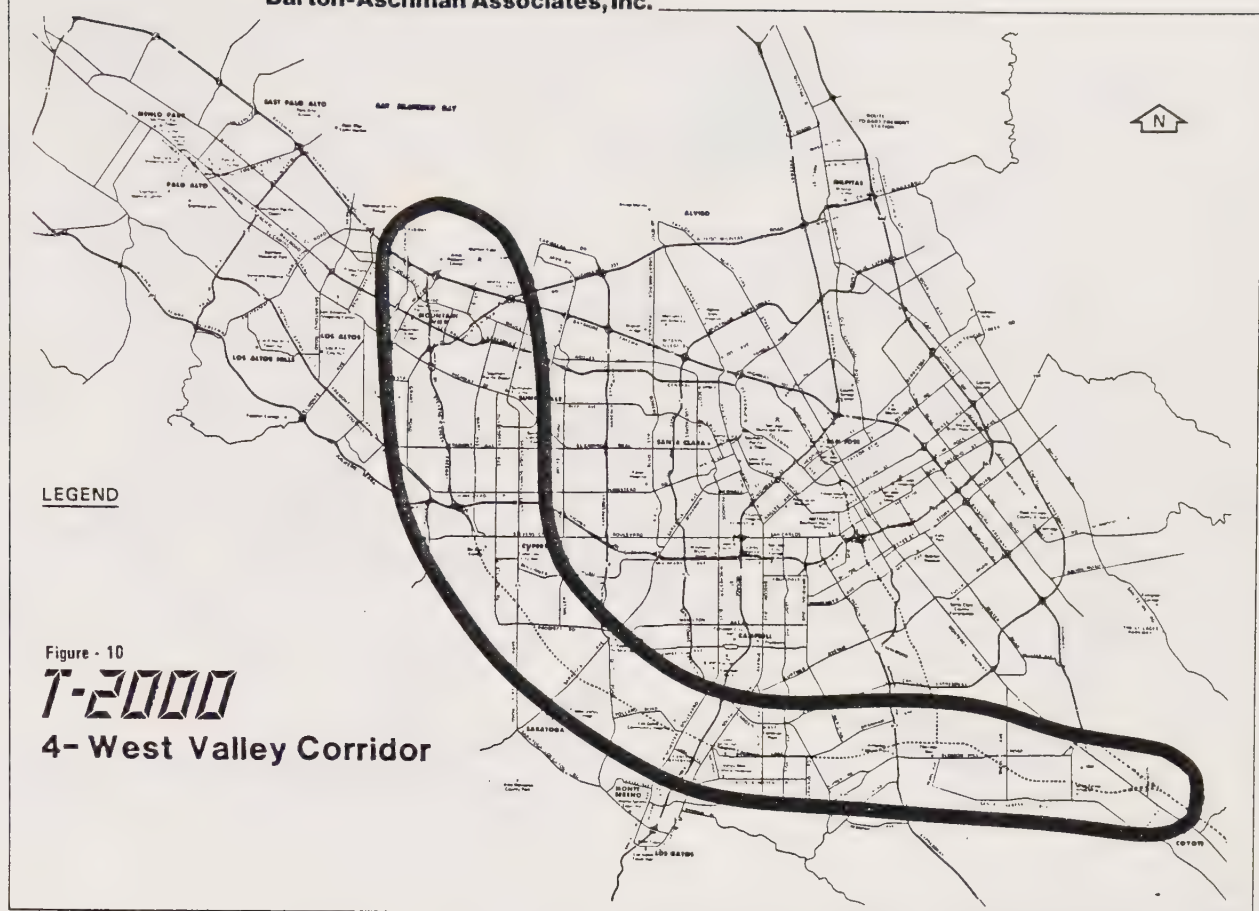
1-2000**3-US-101 Corridor**

The U.S. 101 Corridor is the most heavily traveled corridor in Santa Clara County. It contains Route 101, the CALTRAIN/SP commuter rail line, the Central Expressway, El Camino Real and Monterey Highway. Planned improvements include the widening of 101 to 8 lanes. The Peninsula Transit Study (SCR74 Study) is currently analyzing long range transit options for the corridor, five of which are listed below.

- 3A In this alternative, CALTRAIN service would be extended south to Bailey Avenue in south San Jose to serve the north Coyote Valley development area. The frequency of train service would depend upon future travel demands but for testing purposes, 30 trains per day have been evaluated.
- 3D This alternative proposes the extension of the existing CALTRAIN commuter rail service to Alma Street adjacent to the proposed Guadalupe LRT station. The frequency of the train service under this alternative was assumed to increase to 68 trains per day.
- 4C This alternative would examine the replacement of commuter rail service (CALTRAIN) with LRT service. North of Mountain View, the line would traverse the SP right-of-way through San Mateo County to San Francisco. South of Mt. View, the line would follow the median of the Central Expressway. Headways would be 5 minutes during peak hours.
- 5A This alternative tests the extension of BART from Daly City to the San Francisco Airport and south along the Peninsula to San Jose. It would utilize the existing SP right-of-way and replace the commuter rail service currently in operation. Trains would operate every 3.75 minutes during peak hours and 7.5 minutes during the midday.
- 5D Under this alternative, the existing commuter rail system would be upgraded through more service (150 daily trains), electrification, grade separation of major roads, and equipment and station improvements.



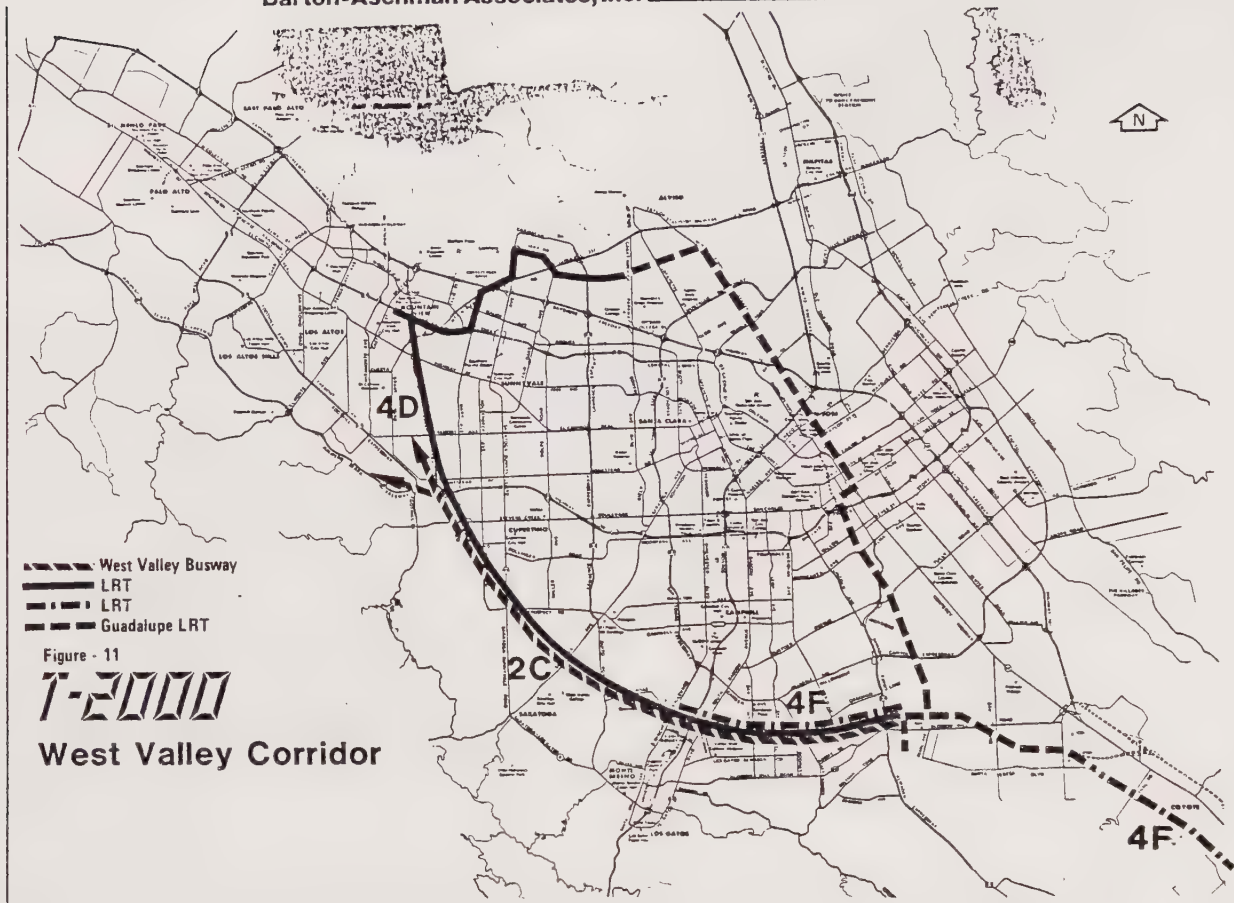
	COMM RAIL TO N. COYOTE	COMM RAIL TO ALMA	LRT TO CENT EXP	BART ON SP ROW	UPGRADED COMM RAIL
Measure Of Effectiveness	3A	3D	4C	5A	5D
FUTURE TRAVEL NEEDS (2000)					
o Daily Transit Trips	3,000	12,000	41,000	44,000	36,000
o Peak Hour Transit Trips	800	2,400	8,200	8,800	7,200
o Highway Volume/Capacity	1.1-1.5	1.1	1.1	1.1	1.1
COST EFFECTIVENESS					
o Cumulative Capital Costs	\$ 31.8M	\$ 8.60M	\$ 391.7M	\$ 662.1M	\$340-683M
o Capital Cost/Guideway Mile	\$ 2.5M	\$ 5.1M	\$ 20.1M	\$ 39.4M	\$ 20-41M
o Annualized Capital Cost	\$ 3.4M	\$ 9.1M	\$ 41.6M	\$ 70.2M	\$ 36-73M
o Capital Cost/Transit Trip	\$ 4.44	\$ 2.57	\$ 3.44	\$ 5.41	\$3.39-6.87
o O & M Cost/Transit Trip	\$ 2.31	\$ 3.01	\$ 1.82	\$ 2.18	\$ 2.72
o Net Cost/Trip	\$ 5.11	\$ 3.94	\$ 3.83	\$ 5.95	\$4.50-7.98
ENVIRONMENTAL IMPACTS					
o Use of Sensitive Areas	0	0	-	-	0
o Noise, Visual or Disruption	-	0	+	-	0
o Reduced Pollutants & Energy Use	+	+	+	+	+
INVESTMENT DISTRIBUTION					
o Vehicle Availability (1980)	1.74	1.59	1.59	1.59	1.59
o Households Served (2000)	79,000	183,000	182,000	183,000	183,000
o Employment Served (2000)	54,000	320,000	305,000	320,000	320,000
o Employment Served (1980)	31,000	235,000	221,000	235,000	235,000
o Cities Served	1	5	6	5	5
EXISTING TRAVEL NEEDS					
o Daily Transit Trips (1984)	27,000	53,000	46,900	53,000	53,000
o Highway Volume/Capacity	1.0-1.4	1.0	1.0	1.0	1.0
REGIONAL MOBILITY (2000)					
o Intra-County Transit Trips	2,600	8,400	29,300	31,000	24,500
o Inter-County Transit Trips	400	3,600	11,700	13,000	11,500
LENGTH (MILES)					
	12.8	16.8	19.5	16.8	16.8



The West Valley corridor passes through 5 cities and connects the major employment centers in the north to the residential areas in the west and south portions of the county.

Construction of the West Valley Freeway, currently undergoing a Caltrans design study, is expected within 10 years. The Guadalupe LRT line will also serve the southern portion of the corridor to provide additional transportation capacity. Three alternative investments have been identified for this corridor which are listed below.

- 2C Caltrans staff is in the process of analyzing a high occupancy vehicle roadway for the West Valley Corridor. This "transitway" would extend from I-280 to the Guadalupe Corridor and would operate in the peak direction only, northwesterly in the morning and southeasterly in the afternoon. New express bus routes would be added to take advantage of the facility which would be used exclusively by carpools, vanpools, and buses.
- 4D An LRT line could run along the West Valley corridor between the Guadalupe LRT line and U.S. 101. From there it would head north and east to Lockheed and continue easterly to link up with the Guadalupe Corridor LRT. Option 4D has been tested with 7.5 minute headways during peak hours.
- 4F This alternative examines east and west extensions of the Guadalupe LRT line to north Coyote Valley and Los Gatos. These have been tested with 12 minute headways during peak hours.



Measure Of Effectiveness	BUSWAY ON ROUTE 85 2C	LRT ON ROUTE 85 4D	LRT ON ROUTE 85 4F
FUTURE TRAVEL NEEDS (2000)			
o Daily Transit Trips	20,000	16,000	4,000
o Peak Hour Transit Trips	6,500	3,300	800
o Highway Volume/Capacity	.9	.9	.9
COST EFFECTIVENESS			
o Cumulative Capital Costs	\$ 145.0M	\$ 484.0M	\$ 154.8M
o Capital Cost/Guideway Mile	\$ 10.7M	\$ 20.2M	\$ 16.3M
o Annualized Capital Cost	\$ 17.5M	\$ 51.3M	\$ 16.4M
o Capital Cost/Transit Trip	\$ 3.43	\$ 10.88	\$ 13.92
o O & M Cost/Transit Trip	\$ 4.08	\$ 2.39	\$ 3.98
o Net Cost/Trip	\$ 6.51	\$ 12.40	\$ 17.03
ENVIRONMENTAL IMPACTS			
o Use of Sensitive Areas	0	Some -	Some -
o Noise, Visual or Disruption	-	-	-
o Reduced Pollutants & Energy Use	-/+	+	+
INVESTMENT DISTRIBUTION			
o Vehicle Availability (1980)	1.99	1.86	1.92
o Households Served (2000)	123,000	197,000	81,000
o Employment Served (2000)	49,000	183,000	49,000
o Employment Served (1980)	34,000	113,000	19,000
o Cities Served	6	9	3
EXISTING TRAVEL NEEDS			
o Daily Transit Trips (1984)	30,800	44,600	17,000
o Highway Volume/Capacity	.9	.9	N/A
REGIONAL MOBILITY (2000)			
o Intra-County Transit Trips	18,000	16,000	4,000
o Inter-County Transit Trips	2,000	-	-
LENGTH (MILES)			
	13.5	23.9	9.5



The I-280 freeway passes through the middle of the urbanized areas of Santa Clara county in the east-west direction. In addition to I-280, it contains the Foothill Expressway in the west, Stevens Creek Boulevard in the middle and Julian Street, Alum Rock Avenue and Story Road in the easterly part of the corridor.

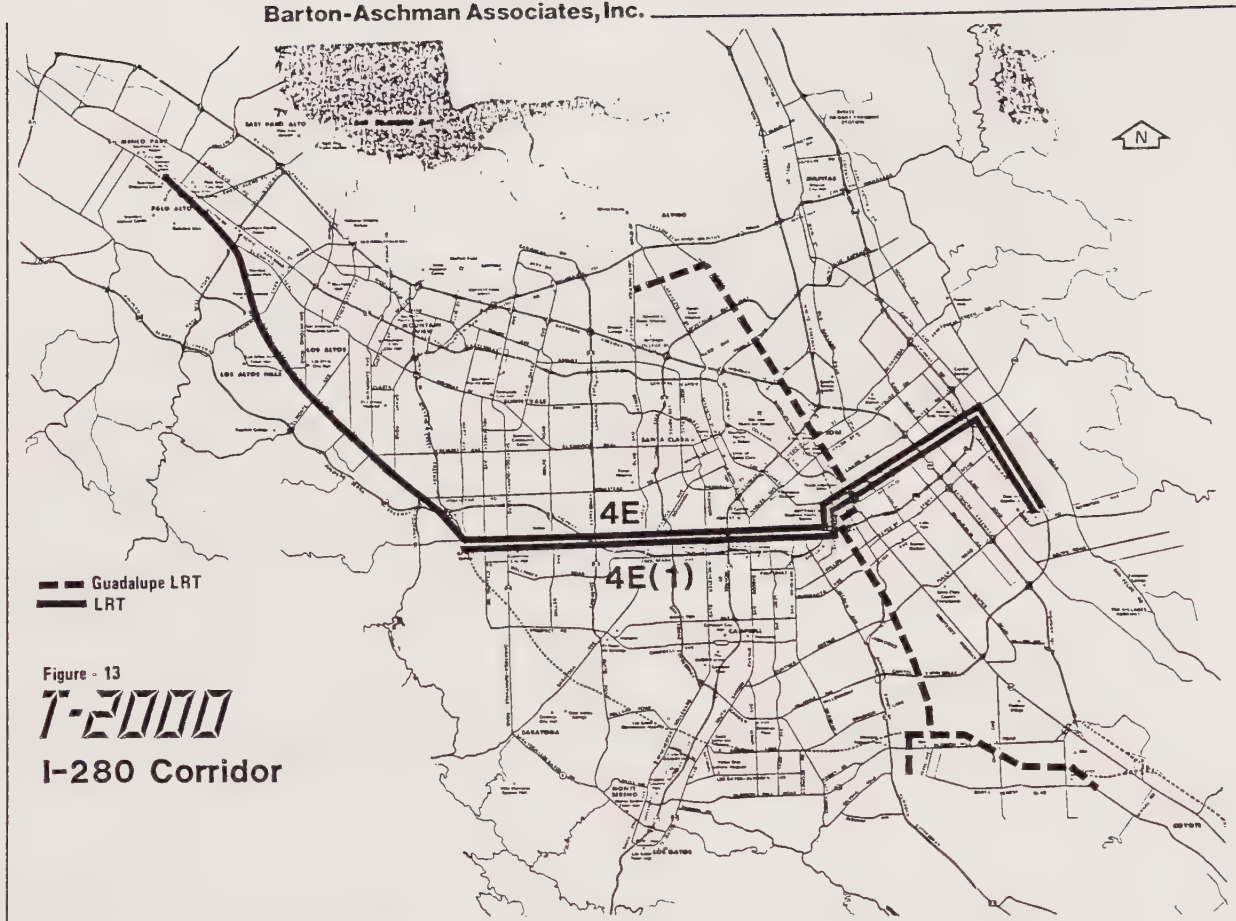
Planned highway improvements include the widening of I-280 to 8 lanes west of Route 17 with 10 lanes between Lawrence and Route 85. Although many trips will be diverted when Route 85 is completed, I-280 will continue to have a capacity shortfall.

To alleviate this capacity deficiency two transit investment options have been identified for this corridor. They are discussed below and illustrated on the following page.

- 4E The I-280 corridor could be served by an LRT line that would connect Reid-Hillview Airport with downtown San Jose via Capitol Expressway, Alum Rock Avenue, and Santa Clara Street. The line would then continue to the east along San Carlos Avenue and Stevens Creek Boulevard and connect with Valco Shopping Center, Cupertino, and De Anza College. From this location, the line could extend north-westerly along Foothill Expressway to serve the Stanford Industrial Park and terminate at the Palo Alto CALTRAIN station.

- 4E(1) This is a shorter version of 4E between East San Jose and De Anza College.

These options have been tested with 7.5 minute headways during peak hours. It has been noted that construction of a light rail line on Stevens Creek Boulevard might require an elevated guideway in parts, greatly increasing the cost of this option. The capital costs shown on the next page assume at-grade operation.

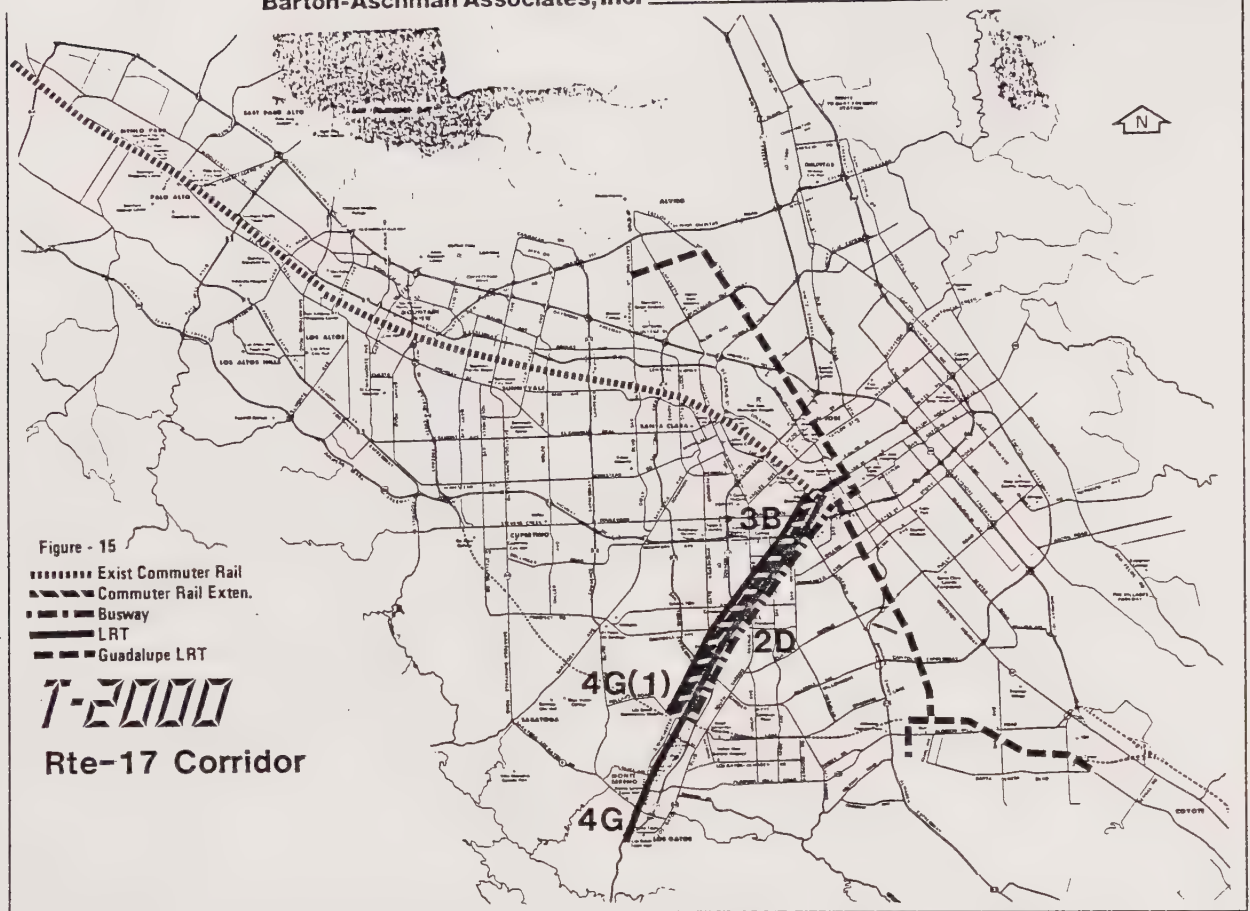


Measure Of Effectiveness	LRT ON E-W ROUTE 4E	LRT CUPERTINO- SAN JOSE 4E(1)
FUTURE TRAVEL NEEDS (2000)		
o Daily Transit Trips	15,000	12,000
o Peak Hour Transit Trips	2,900	2,300
o Highway Volume/Capacity	.9-1.4	1.2-1.4
COST EFFECTIVENESS		
o Cumulative Capital Costs	\$ 525.8M	\$ 311.9M
o Capital Cost/Guideway Mile	\$ 19.7M	\$ 20.4M
o Annualized Capital Cost	\$ 55.8M	\$ 33.1M
o Capital Cost/Transit Trip	\$ 12.61	\$ 9.35
o O & M Cost/Transit Trip	\$ 2.52	\$ 1.88
o Net Cost/Trip	\$ 14.26	\$ 10.36
ENVIRONMENTAL IMPACTS		
o Use of Sensitive Areas	0 or -	0 or -
o Noise, Visual or Disruption	-	-
o Reduced Pollutants & Energy Use	+	+
INVESTMENT DISTRIBUTION		
o Vehicle Availability (1980)	1.71	1.64
o Households Served (2000)	328,000	248,000
o Employment Served (2000)	267,000	200,000
o Employment Served (1980)	191,000	132,000
o Cities Served	5	3
EXISTING TRAVEL NEEDS		
o Daily Transit Trips (1984)	75,300	
o Highway Volume/Capacity	0.86-1.8	0.86-1.8
REGIONAL MOBILITY (2000)		
o Intra-County Transit Trips	13,700	12,000
o Inter-County Transit Trips	1,300	-
LENGTH (MILES)		
	26.7	15.3



In the Route 17 Corridor, Route 17 is the only freeway, stretching from Milpitas in the north to Los Gatos in the south. Major arterials in this corridor include Winchester Boulevard and Bascom Avenue in the south, and Old Oakland Road in the northerly section. Planned improvements include the widening of Route 17 north of U.S. 101 to 8 lanes. No improvements are scheduled for Route 17 south of 101. Four alternative transportation investments have been identified for this corridor. These alternatives are listed below and illustrated on the next page.

- 2D The SP right-of-way known as the Vasona line could potentially be acquired to construct an exclusive busway that would extend from Route 87 (Guadalupe Expressway) in downtown San Jose to the West Valley Corridor in Los Gatos. This busway would be utilized only by transit vehicles, not carpools or vanpools.
- 3B Alternately, the SP tracks along the Vasona Line could be used to extend the commuter rail service between downtown San Jose and the West Valley corridor in Los Gatos. This service would be linked to the Peninsula commuter rail line and has been tested with 20 minute headways during peak hours only.
- 4G This alternative tests an extension of the Guadalupe Light Rail Line with trains operating between Great America and Los Gatos. The extension would begin in downtown San Jose and then follow the SP Vasona line right-of-way to the West Valley corridor. The alignment could then follow Santa Cruz Avenue or a parallel alignment to its termination in south Los Gatos. Option 4G has been tested with 6 minute headways during peak hours.
- 4G(1) This is a shorter version of 4G, extending from the West Valley corridor to points north as described in 4G.



Measure Of Effectiveness	BUSWAY ON VASONA 2D	COMM RAIL ON VASONA 3B	LRT ON VASONA 4G	LRT TO ROUTE 85 4G(1)
FUTURE TRAVEL NEEDS (2000)				
o Daily Transit Trips	6,000	1,500	11,000	9,000
o Peak Hour Transit Trips	1,200	400	2,200	1,700
o Highway Volume/Capacity	1.2-1.6	1.2-1.6	1.2-1.6	1.2-1.6
COST EFFECTIVENESS				
o Cummulative Capital Costs	\$ 62.3M	\$ 15.8M	\$ 213.3M	\$ 148.8M
o Capital Cost/Guideway Mile	\$ 10.7M	\$ 2.5M	\$ 20.9M	\$ 21.0M
o Annualized Capital Cost	\$ 7.5M	\$ 1.7M	\$ 22.6M	\$ 15.8M
o Capital Cost/Transit Trip	\$ 4.90	\$ 4.44	\$ 6.97	\$ 5.95
o O & M Cost/Transit Trip	\$ 4.08	\$ 2.28	\$ 2.48	\$ 2.47
o Net Cost/Trip	\$ 7.98	\$ 5.48	\$ 8.58	\$ 7.55
ENVIRONMENTAL IMPACTS				
o Use of Sensitive Areas	-	0	0	0
o Noise, Visual or Disruption	-	-	+	+
o Reduced Pollutants & Energy Use	+	+	+	+
INVESTMENT DISTRIBUTION				
o Vehicle Availability (1980)	1.63	1.63	1.68	1.63
o Households Served (2000)	104,000	104,000	118,000	104,000
o Employment Served (2000)	110,000	110,000	122,000	110,000
o Employment Served (1980)	77,000	77,000	85,000	77,000
o Cities Served	4	4	5	4
EXISTING TRAVEL NEEDS				
o Daily Transit Trips (1984)	19,200	19,200	48,600	48,600
o Highway Volume/Capacity	0.96-1.2	0.96-1.2	0.96-1.2	0.96-1.2
REGIONAL MOBILITY (2000)				
o Intra-County Transit Trips	6,000	1,200	10,000	8,200
o Inter-County Transit Trips	-	300	1,000	800
LENGTH (MILES)				
	5.8	6.3	10.2	7.1

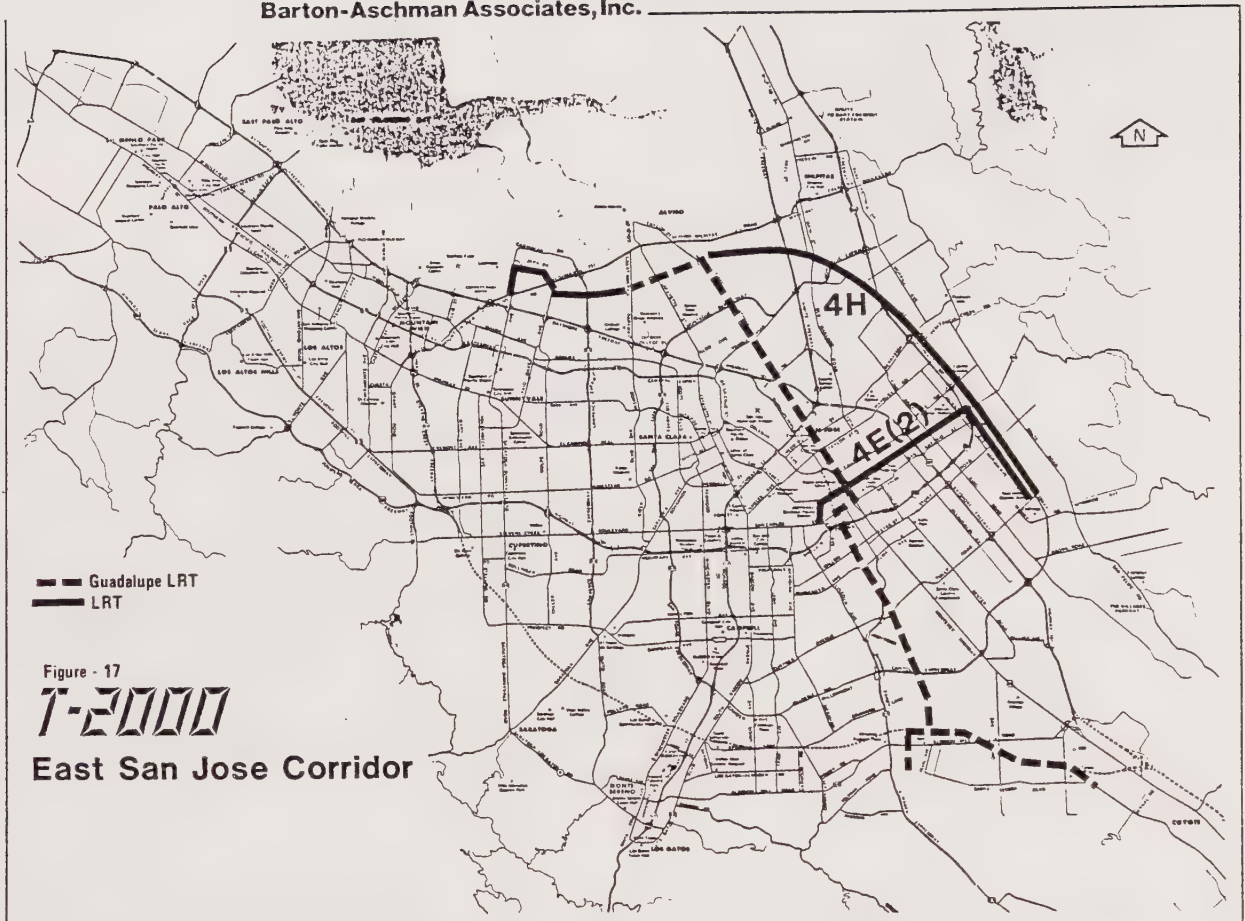


By traditional definition, this is not a "corridor" as generally evaluated in transportation analyses. It is, however, an area in need of transportation investment. The East San Jose Corridor serves a major concentration of population which includes many low income families that depend on transit. This corridor has the highest existing use of transit and ridesharing of all the corridors and serves more residents than jobs.

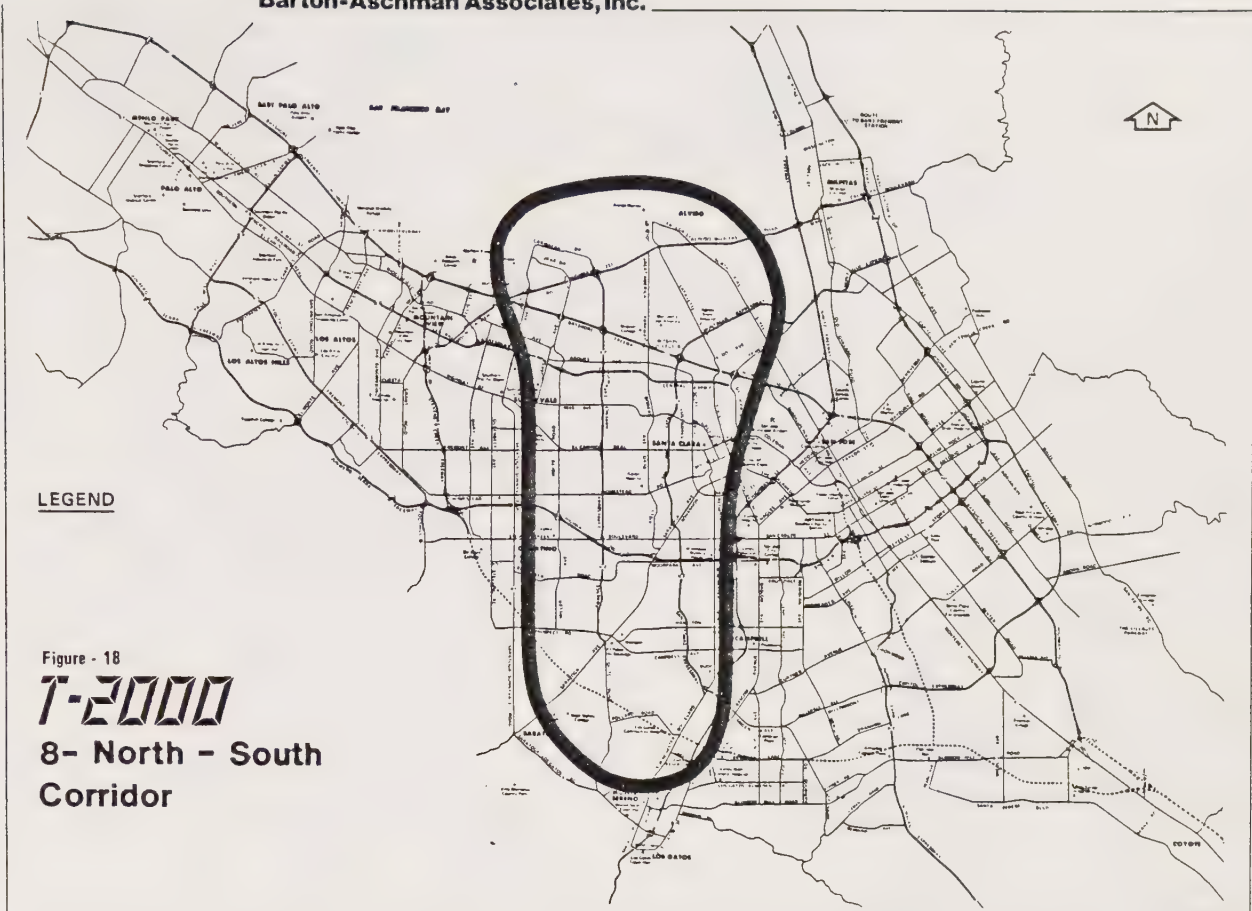
This corridor experiences lower levels of congestion than the other corridors due to a concentration of north-south and east-west highway facilities. Planned highway improvements include the widening of U.S. 101 and Capitol Expressway. With respect to future transit needs, this corridor's high level of demand coupled with its population growth identify it as a candidate for more buses or new rail service for Year 2000.

In addition to the Guadalupe LRT line two alternative investments have been identified for this corridor.

- 4E(2) This alternative consists of an east-west light rail line operating along Capitol Expressway, Alum Rock Avenue, and Santa Clara Street, and Stevens Creek Boulevard.
- 4H This LRT investment alternative would extend from the County Airport north along Capitol Expressway and East Capitol Avenue to Milpitas. From this point, the line would extend west along Tasman Drive to the Lockheed complex in Sunnyvale. For evaluation purposes, this line has been tested with a peak period headway of 7.5 minutes.



Measure Of Effectiveness	LRT ON CAPITOL 4H	LRT TO E. SAN JOSE 4E(2)
FUTURE TRAVEL NEEDS (2000)		
o Daily Transit Trips	10,000	6,000
o Peak Hour Transit Trips	2,000	1,200
o Highway Volume/Capacity	1.2	0.78-2.1
COST EFFECTIVENESS		
o Cumulative Capital Costs	\$ 294.6M	\$ 160.5M
o Capital Cost/Guideway Mile	\$ 20.9M	\$ 22.3M
o Annualized Capital Cost	\$ 31.3M	\$ 17.0M
o Capital Cost/Transit Trip	\$ 10.60	\$ 9.62
o O & M Cost/Transit Trip	\$ 2.10	\$ 1.78
o Net Cost/Trip	\$ 11.83	\$ 10.53
ENVIRONMENTAL IMPACTS		
o Use of Sensitive Areas	0	0 or -
o Noise, Visual or Disruption	Some -	-
o Reduced Pollutants & Energy Use	+	+
INVESTMENT DISTRIBUTION		
o Vehicle Availability (1980)	1.85	1.69
o Households Served (2000)	97,000	116,000
o Employment Served (2000)	131,000	63,000
o Employment Served (1980)	71,000	39,000
o Cities Served	5	2
EXISTING TRAVEL NEEDS		
o Daily Transit Trips (1984)	48,000	
o Highway Volume/Capacity	1.4-2.5	.5-1.4
REGIONAL MOBILITY (2000)		
o Intra-County Transit Trips	10,000	6,000
o Inter-County Transit Trips	-	-
LENGTH (MILES)		
	14.1	7.2

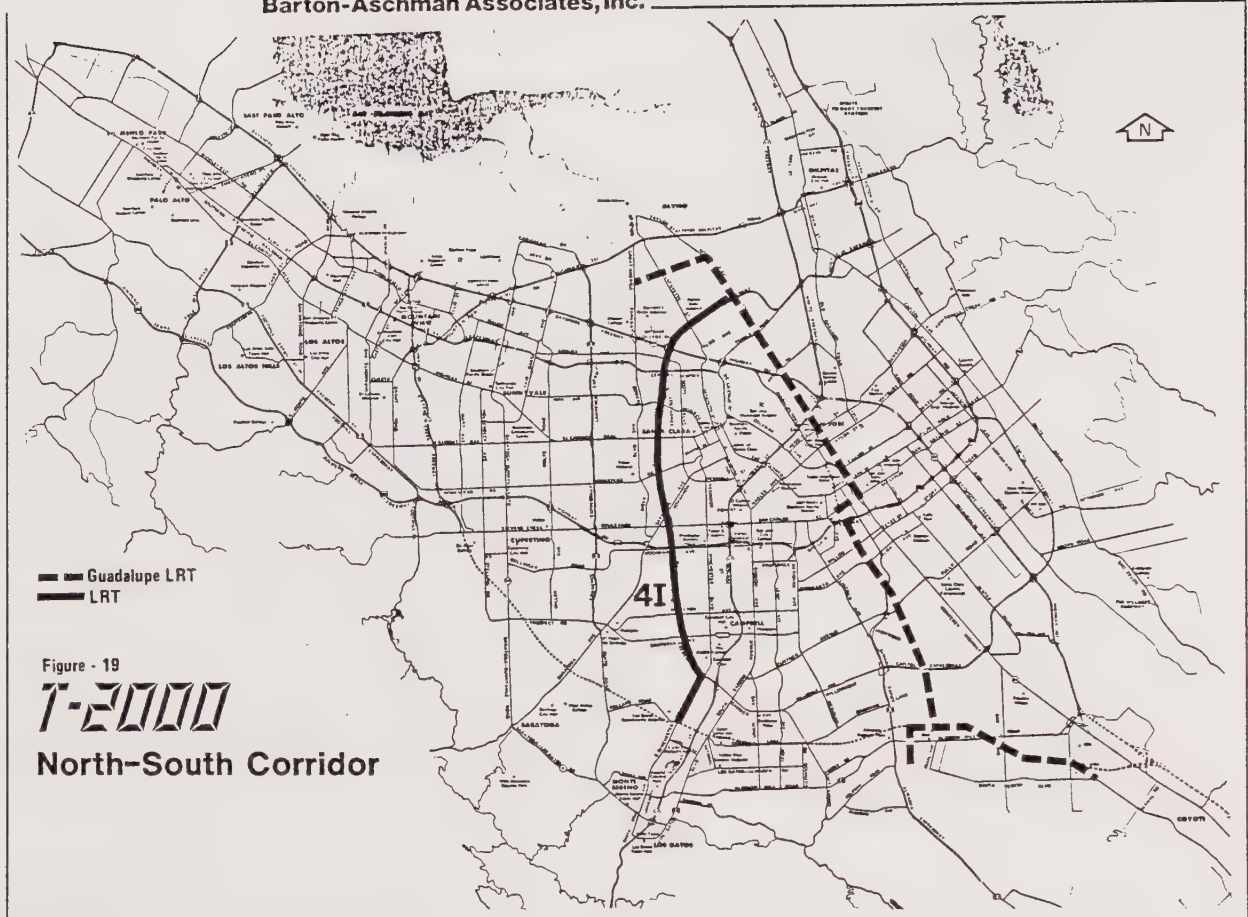


One of the most heavily traveled corridors within Santa Clara County is formed by Lawrence Expressway, Kiely Boulevard, San Tomas Expressway and Wolfe Road. Due to its orientation, it connects the residential areas of Saratoga, Monte Sereno, Los Gatos, Campbell, San Jose, Santa Clara (city) and Sunnyvale with the major employment centers north of the Central Expressway.

Employment and housing are fairly evenly balanced in the north-south corridor, and these land-uses generate a high volume of trips into the heart of Silicon Valley. This corridor has a slightly lower growth rate in jobs (34%) than other corridors but traffic demands will still be close to capacity. Peak hour Commuter Lanes on Lawrence Expressway are the only road improvements planned for the corridor and these are currently being designed.

One additional transportation investment (option) has been identified for this corridor by this study. It is described below and illustrated on the next page.

- 4I Currently the San Tomas Expressway accommodates HOV lanes over its entire length. An LRT line could be provided in lieu of the HOV lanes to connect residential areas in the south to employment centers in north San Jose. Alternately, an elevated guideway could be constructed for an LRT line. Light rail trains traversing this corridor would operate between Route 85 and the terminus of the Guadalupe corridor LRT at Great America Parkway in Santa Clara. Peak hour headways of 7.5 minutes have been assumed for testing this option along with an elevated guideway.



LRT
ON
SAN TOMAS

Measure Of Effectiveness

4I

FUTURE TRAVEL NEEDS (2000)

o Daily Transit Trips	8,000
o Peak Hour Transit Trips	1,500
o Highway Volume/Capacity	0.89

COST EFFECTIVENESS

o Cumulative Capital Costs	\$ 313.9M
o Capital Cost/Guideway Mile	\$ 32.4M
o Annualized Capital Cost	\$ 33.3M
o Capital Cost/Transit Trip	\$ 14.11
o O & M Cost/Transit Trip	\$ 2.34
o Net Cost/Trip	\$ 15.58

ENVIRONMENTAL IMPACTS

o Use of Sensitive Areas	0
o Noise, Visual or Disruption	Some -
o Reduced Pollutants & Energy Use	+

INVESTMENT DISTRIBUTION

o Vehicle Availability (1980)	1.79
o Households Served (2000)	105,000
o Employment Served (2000)	139,000
o Employment Served (1980)	91,000
o Cities Served	5

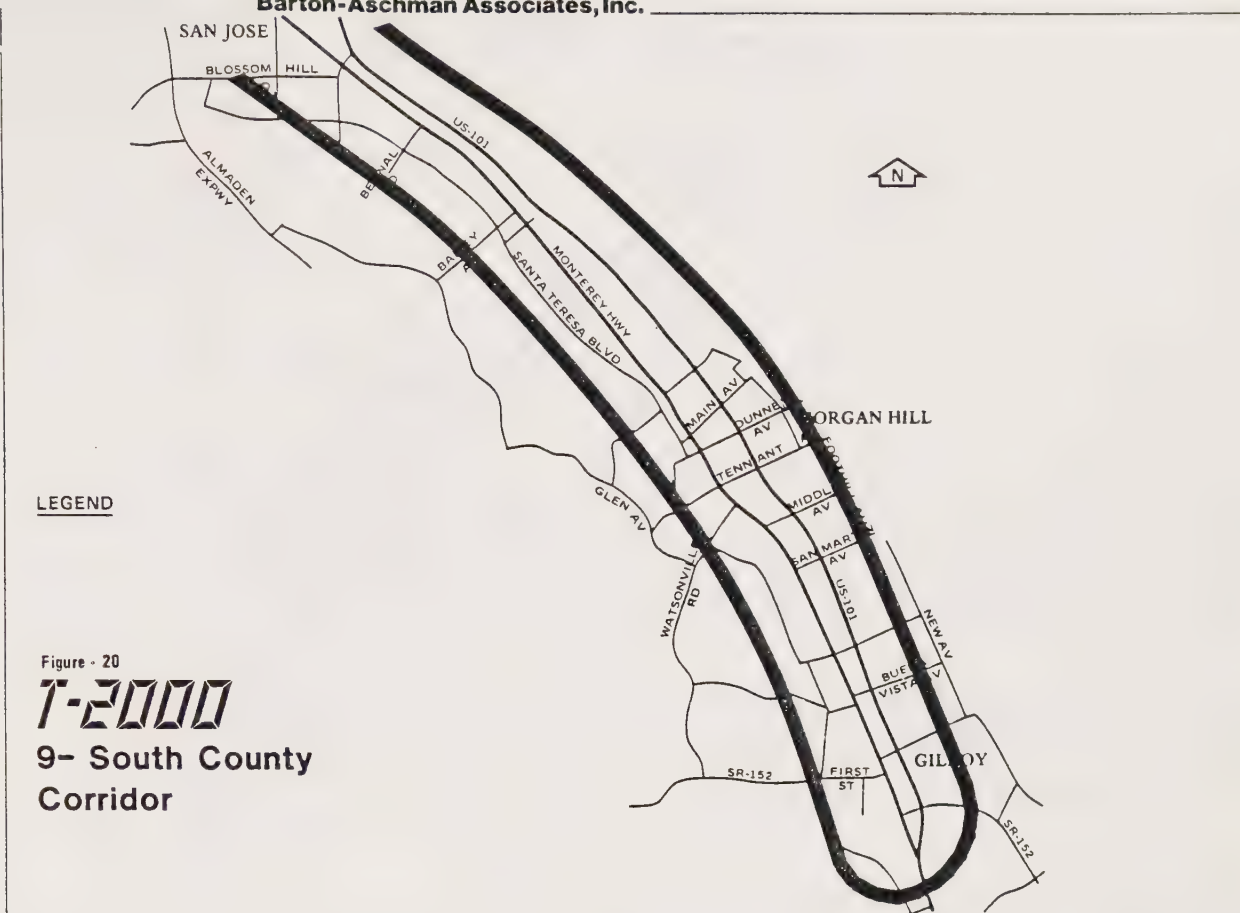
EXISTING TRAVEL NEEDS

o Daily Transit Trips (1984)	18,200
o Highway Volume/Capacity	0.98

REGIONAL MOBILITY (2000)

o Intra-County Transit Trips	8,000
o Inter-County Transit Trips	-

LENGTH (MILES)	9.7
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The South County corridor runs south-east of San Jose along Route 101. It contains U.S. 101, Monterey Highway and portions of Santa Teresa Boulevard. Also included in this corridor are the Southern Pacific railroad tracks that parallel Monterey Highway. Planned transportation improvements include the completion of Santa Teresa Expressway as a continuous route and an expansion of local and express bus service.

This corridor contains primarily the rural area of the County which has a much lower population than other corridors. The population is concentrated in the communities of Gilroy, Morgan Hill and San Martin. Travel includes many local trips but there is an increasing number of commuters to the North County.

Two alternative transportation investments have been identified for this corridor. They are listed below and illustrated on the next page.

- 3C As described in Alternative 3A, CALTRAIN service could be extended further south along the SP tracks to serve South County. Additional stations would be provided along the line at Morgan Hill, San Martin, and Gilroy and trains would operate every 20 minutes during peak hours.
- 4K As an alternative, light rail service could be extended from the Guadalupe corridor termination at Santa Teresa south to downtown Gilroy. The alignment would follow Santa Teresa Boulevard through Madrone, Morgan Hill, San Martin and terminate at First Street (Highway 152) in Gilroy. This option has been tested with 12 minute headways during peak hours.



Measure Of Effectiveness	COMM RAIL TO GILROY 3C	LRT TO GILROY 4K
FUTURE TRAVEL NEEDS (2000)		
o Daily Transit Trips	500	2,000
o Peak Hour Transit Trips	200	400
o Highway Volume/Capacity	1.0	1.0
COST EFFECTIVENESS		
o Cumulative Capital Costs	\$ 52.5M	\$ 337.8M
o Capital Cost/Guideway Mile	\$ 2.5M	\$ 15.4M
o Annualized Capital Cost	\$ 5.6M	\$ 35.8M
o Capital Cost/Transit Trip	\$ 43.92	\$ 60.75
o O & M Cost/Transit Trip	\$ 8.67	\$ 11.45
o Net Cost/Trip	\$ 49.73	\$ 71.33
ENVIRONMENTAL IMPACTS		
o Use of Sensitive Areas	0	-
o Noise, Visual or Disruption	Some -	-
o Reduced Pollutants & Energy Use	+	+
INVESTMENT DISTRIBUTION		
o Vehicle Availability (1980)	2.03	1.88
o Households Served (2000)	28,000	36,000
o Employment Served (2000)	41,000	52,000
o Employment Served (1980)	6,000	10,000
o Cities Served	3	3
EXISTING TRAVEL NEEDS		
o Daily Transit Trips (1984)	1,300	1,300
o Highway Volume/Capacity	0.62	0.62
REGIONAL MOBILITY (2000)		
o Intra-County Transit Trips	500	2,000
o Inter-County Transit Trips	-	-
LENGTH (MILES)	21.0	22.0

4.

EVALUATION OF SYSTEMWIDE ALTERNATIVES

This chapter addresses a number of system-wide alternatives that were tested for Transportation 2000. The purpose of this level of analysis was to determine the implications of providing improvements (or retaining the baseline system) throughout the county and to prioritize the system-wide alternatives to meet future travel demands. In essence, this level of analysis looks at "the big picture" in terms of highway and transit demand in the year 2000.

Four system-wide alternatives were tested during the course of this study. While a more detailed discussion of the alternatives follows, a brief description of each systemwide alternative is presented below.

Alternative 0 -- Baseline Transportation System

The baseline system consists of the existing, planned and programmed transportation system improvements within Santa Clara County, including Measure "A" improvements. With respect to transit service, the Guadalupe LRT has been included; however, countywide bus operations and CALTRAIN operations remain at 1984 levels.

Alternative 1 -- Transportation Systems Management

This alternative contains relatively low cost improvement strategies which can be implemented countywide to enhance transit performance, increase auto occupancy and decrease single occupant passenger vehicles.

Alternative 2B -- Bus System Expansion To 1500 Buses

This system-wide alternative would expand the bus fleet to 1500 vehicles, constituting a tripling of service compared to existing levels. The basic grid route structure would operate with 7.5 minute headways during peak hours with some routes operating at 5 minute headways.

Alternative 4J -- Countywide LRT System

Due to the fact that opportunities for improving roadway capacities are limited, this alternative deals with the question of providing LRT service on an overall systems basis. This alternative examines the opportunities inherent in expanding the system which would likely be constructed in stages as the demand warrants.

A more detailed discussion of the various alternatives and their implications follows.

ALTERNATIVE 0 -- BASELINE TRANSPORTATION SYSTEM

The baseline transportation system consists of the existing, planned, and programmed transportation system improvements within the Santa Clara County study area. The intent of studying Alternative 0 is to determine if these improvements alone will be sufficient to accommodate the county's future transportation needs. It thus represents a benchmark against which other systemwide and corridor improvements can be evaluated.

The recent passage of Measure "A" has insured funding for widening U.S. 101, upgrading Route 237 to freeway standards, and constructing Route 85 in the West Valley Corridor. Funding for the construction of Guadalupe Expressway and Light Rail System is already approved and Caltrans is proposing to widen Route 17 north of U.S. 101 and I-280 west of Route 17.

Santa Clara County has also programmed the widening of the expressway system, which includes the Lawrence Expressway (between Route 237 and Saratoga Avenue), the Central Expressway (between Route 85 and De La Cruz), and the Capitol Expressway (between Route 101 and I-680).

As all of these transportation system improvements are either funded or programmed, they can be treated as the baseline system, which is expected to be in place by the year 2000.

With respect to transit service, no improvements other than the Guadalupe Corridor light rail line are included in this alternative. Countywide bus service remains at 1984 levels (420 scheduled buses during peak hours) and Caltrain commuter rail service continues with 46 trains per day.

The projected transit usage in the year 2000 would be approximately 88,000 daily home-based work trips and 202,000 daily trips in total. This would constitute 3.3% of all work trips produced in the county (residential generators) and about 4.0% of all trips attracted into the county (employment generators). The Year 2000 estimated daily trips represent a 62% increase in transit usage over 1984 levels.

The location of the planned highway improvements are illustrated on the accompanying illustration. It is estimated that these facilities will cost approximately \$830 million to construct (1984 dollars), not counting the Guadalupe corridor improvements. For comparison, this translates to an annualized capital cost of \$88 million per year.

As discussed in Chapter 2, congestion will persist even with these baseline improvements. Additional highway, transit and ridesharing improvements will be needed to accommodate the anticipated year 2000 growth in travel demand.



ALTERNATIVE 1 -- TRANSPORTATION SYSTEM MANAGEMENT ACTIONS

The Transportation System Management (TSM) alternative contains relatively low cost improvements that can enhance transit performance, increase automobile occupancy, and reduce single passenger vehicles in the county.

TSM measures will include:

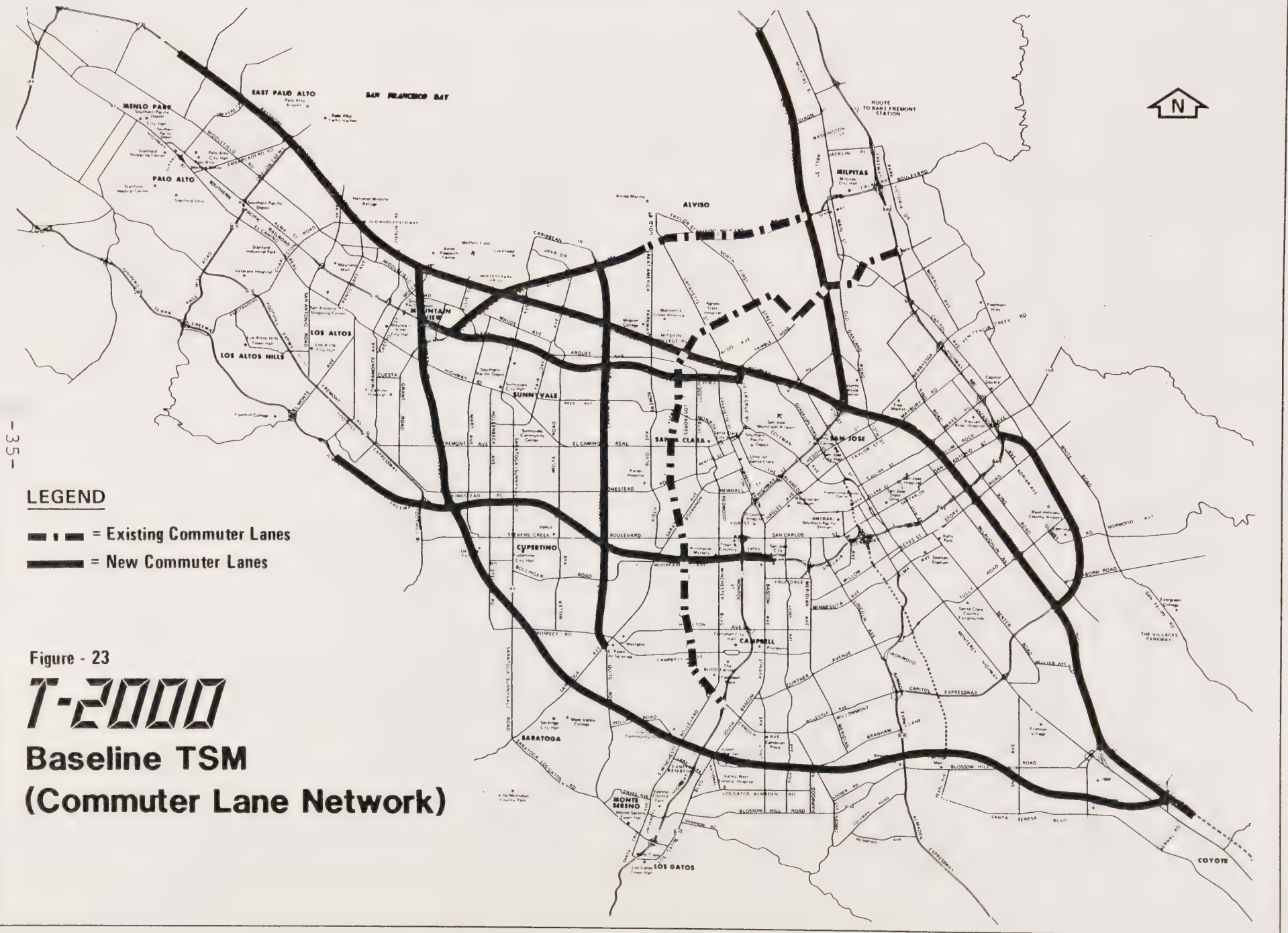
- Increasing the SCCTD bus fleet to 750 vehicles to offer additional express route service and improve the frequency of service on local routes. This action will add 200 buses during peak hours to serve commuters and other trip makers.
- Increasing commuter rail service frequency from 46 to 68 trains daily. This action provides more southbound trains during morning peak hours and additional northbound trains in the evening.
- Aggressively promoting ridesharing programs with employers throughout the county.
- Constructing additional park-n-ride facilities along existing transit routes.
- Installing traffic signal pre-emption equipment to expedite the movement of buses on all major bus routes.

In addition to the above actions, this alternative would entail designating many of the additional highway lanes constructed under Alternative 0 as high-occupancy vehicle lanes. The accompanying illustration shows the location and extent of HOV lanes, one in each direction per facility. Ramp metering at the major highway interchanges with bypass lanes for high occupancy vehicles are also included in this alternative.

The above-described TSM actions including HOV lanes are included in all alternatives considered by this study other than Alternative 0. These actions would increase the overall capital cost of transportation improvements by approximately \$145 million compared to Alternative 0, or an additional annualized cost of \$17 million.

The projected transit usage in the year 2000 with this alternative would be approximately 111,000 home-based work trips and 255,000 daily trips in total. This constitutes 3.9% of all work trips produced in the county and 4.6% of all trips attracted within the county. The Year 2000 estimated work trips by public transit represent a 104% increase over 1984 conditions and a 26% increase over the Baseline (Alternative 0).

Highway congestion would be eased by these TSM actions but not eliminated. Most of the highway segments mentioned for Alternative 0 would continue to be congested although shared riders in carpools, vanpools and buses would have faster commute travel times.



ALTERNATIVE 2B — BUS SYSTEM EXPANSION TO 1500 BUSES

The existing bus fleet with 56 local and 21 express routes provides basic transit service in Santa Clara County. Under Alternative 2B, the SCCTD bus fleet would be expanded to 1500 buses. This represents a doubling of service compared to the TSM Alternative (1) and a tripling of service compared to existing levels.

According to 1981 MTC Surveys, the homebased work transit trips per household in Santa Clara County are reported to be only 2.6% of all trips compared to the regional average of 10.9%. Therefore, the transit usage in Santa Clara County is below the regional average.

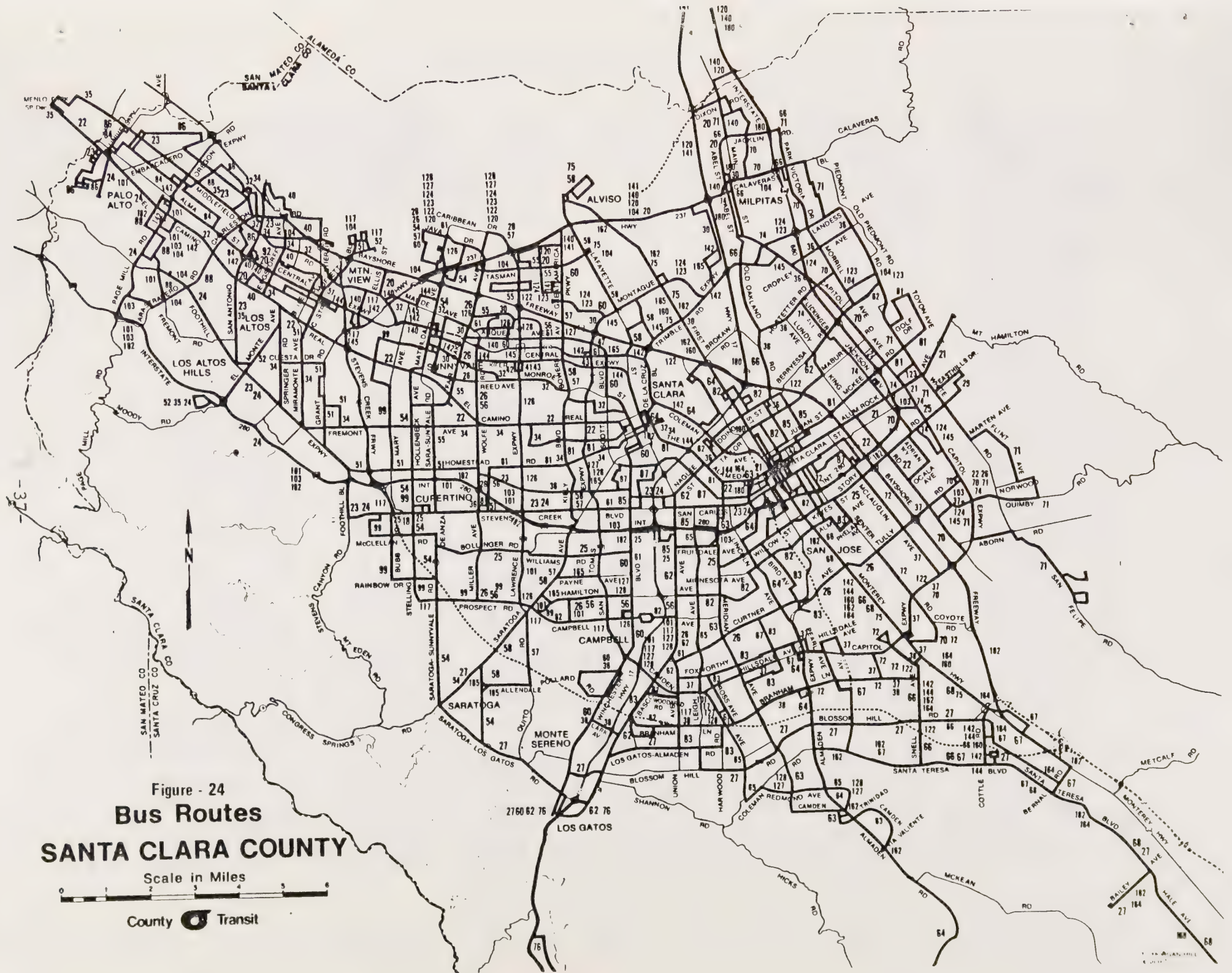
The limit on the size of the bus fleet has been one of the factors contributing to low transit usage. Given the place of work and place of residence locations in Santa Clara County, it appears that the concept of express buses for work trips and more frequent peak period service offer potential for increasing transit mode split.

SCCTD's current five year transit plan outlines a service expansion program that would have the county's peak bus requirement growing from 399 in 1984 to 576 in 1990 and 610 buses thereafter (relating to a total active fleet size of 750 buses). This alternative would double the peak period bus requirement to 1220 buses (total active fleet size of 1500 buses).

This fleet size would allow SCCTD to upgrade its basic grid route structure to 7.5 minute headways during peak hours with some routes operating with 5 minute service. Express bus services would be expanded where demand warranted and new feeder routes would be implemented to serve the Guadalupe Corridor LRT System and the Peninsula Corridor rail services.

The estimated capital cost of this alternative would be \$165 million over and above that of Alternative 1. The additional annualized capital cost would be approximately \$22 million. Coupled with Alternative 1 investments, these public transportation improvements would cost \$310 million in total to construct and/or purchase. Annualized, the capital costs would be \$39 million per year.

The projected transit usage in the year 2000 with this alternative would be approximately 120,000 home-based work trips and 276,000 daily trips. This constitutes 4.1% of all work trips produced in the county and 4.7 of all trips attracted within the county. The Year 2000 estimated work trips represent a 121% increase over 1984 conditions and a 37% increase over the Baseline (Alternative 0).



ALTERNATIVE 4J -- COUNTYWIDE LRT SYSTEM

Light rail is an updated version of earlier streetcar lines. It is larger, faster, and generally quieter however. Light rail differs from heavy rail principally in that it does not need to have underpasses/overpasses at every intersection and has more limited capacity. The primary advantage to light rail is that capital costs are less than for heavy rail, and operating costs can be lower than those of bus systems when ridership is high. Disadvantages include its slower speeds and limited capacity when compared to heavy rail.

Opportunities exist for providing additional light rail lines to supplement the service to be provided by the Guadalupe LRT line (expected to be in operation by 1988-89). This alternative deals with the question of providing LRT service on an overall systems basis. In other words, if LRT were selected as the major means of public transportation, what would the system operate like once it was completed? For this study, the countywide LRT system alternative consists of a combination of all the LRT line alternatives discussed in Chapter 2 of this work paper. These alternatives are listed below and illustrated on the following page.

- Alternative 4A - Extensions of Guadalupe Corridor LRT
- Alternative 4B - Fremont to Southbay LRT connection
- Alternative 4C - Central Expressway LRT line San Jose to Mt. View
- Alternative 4D - LRT on West Valley Corridor and SR 85
- Alternative 4E - East-West-LRT Line-East San Jose to Palo Alto
- Alternative 4F - LRT in Vasona/West Valley Corridor/North Coyote Valley
- Alternative 4G - East San Jose to Los Gatos LRT Line
- Alternative 4H - Capitol Expressway LRT Line
- Alternative 4I - San Tomas Expressway LRT Line

The projected employment (50%) and population (16%) increases by the year 2000 are expected to generate significant demand on the current and even the improved transportation facilities that will be in operation by 2000. There are very limited opportunities for widening the existing freeways, expressways and arterial streets.

Due to the future increased travel demands brought about by these employment and population increases and limited opportunities for improving roadway capacities, it is appropriate to explore this transit mode as a means to serve the travel needs of the future. This countywide alternative, although quite extensive, examines the impact of expanding the LRT system to serve the major employment and commercial centers of the county, connecting these with residential areas. It would likely be constructed in stages as the demand warrants.

The overall capital cost of this total 120 mile countywide LRT system would be \$2.5 billion excluding the Guadalupe corridor line. Annualized capital costs would amount to \$265 million per year. The projected transit usage in the year 2000 with this alternative would be approximately 127,000 home-based work trips and 293,000 daily trips. This constitutes 4.5% of all work trips produced in the county and 5.7% of all trips attracted within the county. The Year 2000 estimated work trips represent a 134% increase over 1984 conditions and a 45% increase over the Baseline (Alternative 0).



Figure - 25

T-2000 **ALT-4J** **County-Wide** **LRT System**

5.

SUMMARY OF FINDINGS

This section summarizes the results of the technical evaluation of transportation corridors and alternative transportation modes. It concludes with a discussion of land-use development objectives that are needed to accompany the transportation investments that have been identified in this report.

COMPARISON OF CORRIDORS

Guadalupe Corridor

The four alternatives examined for this corridor consist of relatively minor extensions of the baseline Guadalupe LRT system. In terms of Year 2000 travel demand, the Lockheed extension appears to be the most promising with 3000 daily and 600 peak hour trips. Also, in terms of net cost per trip this alternative is by far the best with \$9.82 cost per trip. Therefore, it is concluded that Alternative 4A(2), LRT to Lockheed, is rated the highest within the Guadalupe Corridor.

In comparison to the other corridors, the Guadalupe ranks near the bottom in terms of further, new investments in highway or transit systems. This is primarily due to the current efforts to build the Guadalupe Corridor Expressway and LRT line.

Fremont to Southbay Corridor

Fixed guideway systems of LRT or BART and a combination of the two were tested as transportation alternatives in this corridor. It appears that in terms of Year 2000 transit trips, it has the second highest potential among the nine corridors regardless of which transportation mode is utilized. Further, the net cost per trip for the various alternatives is second only to the U.S. 101 corridor and varies from \$4.49 to \$10.31 per trip.

In terms of future capacity deficiency, it was estimated that this corridor will experience a 40% higher demand than the available freeway capacity after the "Measure A" improvements have been implemented. Overall, this corridor therefore ranks in the top one-third of the nine corridors studies.

U.S. 101 Corridor

Five transportation alternatives were tested within this corridor. Three different fixed guideway systems, commuter rail, LRT or BART, were examined with two variations in quality and level of service. In terms of transit ridership for Year 2000, this corridor shows the highest potential when compared to the other corridors. It also rates highly due to its low net cost per trip.

The U.S. 101 corridor currently serves the highest concentration of jobs in the County and will continue to do so in the year 2000. Overall, it ranked in the top one third of all corridors studied, in all categories of criteria evaluated.

West Valley Corridor

Express buses and LRT were tested as the major transit alternatives within the Route 85 right-of-way. Although, the daily transit ridership was not as high as the Fremont-Southbay and U.S. 101 corridors, ridership was still projected to be relatively significant. The ridership potential rated fifth among the nine corridors. The net cost per trip varied significantly depending upon the mode with the express bus alternative being the most cost effective of the options tested. Overall, this corridor tied for fourth place among the nine corridors studied.

The West Valley corridor serves a significant number of households at the present time and is expected to continue to do so in the future. The current vehicle availability is reported to be very high compared to the other corridors, thus it would be most appropriate to consider automobile and shared ride transportation investments -- as opposed to fixed guideway mass transit alternatives.

I-280 Corridor

An east-west LRT line was tested in this corridor with variations in length. In terms of transit ridership, this corridor indicated the potential for significant ridership and was fourth among the nine corridors. This potential is due to its location within the central county and the fact that this corridor will serve a large number of households and employment centers by the year 2000.

The Year 2000 capacity deficiency will be in the range of 20% to 40% if no further transportation systems improvements beyond the baseline are made. Investments should, however, be made as this corridor ranked third overall in terms of transportation need.

Route 17 Corridor

This corridor serves a large number households and several employment centers which are currently being developed. At this time, there are no plans to improve the highway system (south of U.S. 101) even though projected capacity deficiencies range from 20 to 60 percent by the year 2000.

To address these shortfalls, three alternative transit modes were tested for potential application in the corridor: express bus, commuter rail, and LRT service. The net cost per transit trip did not vary significantly between these options although overall ridership did -- from 1500 to 11,000 transit trips daily.

Overall, this corridor tied for fourth place in terms of transportation investment priority, but importantly was third from the standpoint of transit cost effectiveness.

East San Jose

By traditional definition, this area is not a corridor per se as there are few focused travel demand patterns. Its residents are in need of transit investment however as demonstrated by their very high use of existing transit services.

Two alternatives for fixed guideway transit were evaluated for this area: an LRT line along Capitol Expressway and East Capitol Avenue, and an LRT line along Alum Rock Avenue. These showed a mid level of potential, and overall the area ranked sixth among the nine corridors examined.

North South Corridor

A light rail transit line was tested in this corridor to serve residents and employment within one to two miles of San Tomas Expressway. In terms of cost effectiveness, this corridor ranked eighth due to the relatively high cost of constructing the LRT line and lower transit ridership, 8,000 passengers forecast per day. Also, existing and future projected highway capacity shortfalls were less severe than other corridors.

The above factors in combination placed the North-South corridor in the bottom one third in terms of priority for fixed guideway transit investment. The corridor continues to be an excellent selection for HOV commuter lane investment however.

South County Corridor

Due to its comparatively low population and employment base, this corridor showed the least potential for fixed guideway transit ridership. It therefore was the highest, or worst, in terms of net public cost per transit trip.

In terms of existing and future transportation need, this corridor also ranked low, and ranked lowest overall for fixed guideway transit investment.

Summary of Corridor Performance

Selected measures of effectiveness have been summarized in Table 3 for each of the transportation corridors. This summary matrix is the basis for the ranking of corridors discussed above.

TABLE 3
T-2000 CORRIDOR PERFORMANCE

Corridor	Future Travel Needs (2000 V/C-Transit Trips)	Cost Effectiveness (\$ Trip)	Investment Distribution (DUs + Employment)	Existing Needs (1980 V/C)	Overall Rank
Guadalupe	1.0:1.5 - 3,000	\$9.82 - 34.35	82,000	0.9 - 1.7	8
Fremont	1.4 - 33,000	\$4.49 - 10.31	297,000	1.0 - 1.7	1
U.S. 101	1.1 - 44,000	\$3.83 - 5.95	503,000	1.0 - 1.4	1
West Valley	0.9 - 20,000	\$6.51 - 17.03	380,000	0.9	4
I-280	1.3 - 15,000	\$10.36 - 14.26	448,000 - 595,000	0.9 - 1.8	3
SR 17	1.4 - 11,000	\$5.48 - 8.58	240,000	1.0 - 1.2	4
E. San Jose	1.2 - 10,000	\$10.53 - 11.83	228,000	1.4	6
North-South	0.9 - 8,000	\$15.58	244,000	1.0	7
South County	1.0 - 2,000	\$49.73 - 71.33	88,000	0.6	9

APPLICABILITY OF TRANSPORTATION MODES

This long-range planning study has examined a wide variety of transportation modes and their potentials for application in Santa Clara County. Although this investigation will continue as an ongoing or reoccurring assessment, our point-in-time findings are these:

Rail Transit

Modes considered for Santa Clara County included only those having some precedence and popular support within the Bay Area; i.e. light rail transit (LRT), commuter rail, and rapid transit such as provided by BART. Based upon the identified needs, apparent opportunities for physical construction and right-of-way acquisition, and potential ridership and cost effectiveness; corridors showing the highest potentials for new or upgraded rail service were:

- Fremont to South Bay
- U.S. 101 (Peninsula Corridor)
- Route 17 San Jose to Los Gatos

These corridors could each tie into and possibly extend the Guadalupe Corridor LRT system to Lockheed/Mountain View, Milpitas, and North Coyote Valley.

Bus Transit

Modes or service expansions considered by this study included: express buses operating on exclusive busways and/or commuter lanes with mixed traffic, local buses operating on grid or arterial routes, and buses providing feeder service to rail transit stations. In general, it is recommended that bus service be expanded county wide to at least the level proposed by the Transportation System Management Action Plan. Beyond this fleet expansion to 750 buses, the following corridors should receive priority for further bus service investments:

- Interstate 280
- West Valley
- East San Jose

These investments should be oriented toward purchasing and operating more bus service rather than constructing new fixed facilities such as exclusive use busways.

Highway/Commuter Lanes

This project examined a large number of potential highway improvements including the Measure "A" projects and the construction of Commuter Lanes on most of the county's freeways and expressways. An analysis of Year 2000 traffic conditions indicates that virtually all of these highway system expansions will be required if land development growth continues at its projected rate. Therefore a program of highway

expansions/widenings is recommended for Santa Clara County with preference being given to the addition of Commuter (shared ride) Lanes and bypasses at freeway on ramps. Barton-Aschman Associates, Inc. suggests that the following corridors should receive priority for these Commuter Lane projects.

- U.S. 101
- Fremont-South Bay
- I-280
- North-South
- West Valley

In the case of the West Valley corridor, these commuter lanes would encompass the "transitway" currently being examined by Caltrans.

Other corridors showing longer-range potential for commuter lanes include Route 17 and the Guadalupe corridor.

Summary of Modal Applicability

Figure 26 illustrates and summarizes the consultants' observations and findings relative to the applicability of transportation investments for the county's travel corridors. These selections represent the opinions of Barton-Aschman Associates, Inc. and not necessarily those of the County of Santa Clara. It is recommended that Phase II of Transportation 2000 focus its efforts on the analysis of modes and corridors identified in this summary of findings.

With respect to the applicability of more highways for general traffic use, this major policy question will need to be examined as well in Phase II in light of the land development objectives which are discussed below.

DEVELOPMENT OBJECTIVES TO GUIDE TRANSPORTATION INVESTMENT

Coordinating Urban Development

Virtually all parties involved with Transportation 2000 have recognized that the county's mobility needs cannot be met alone by manipulating the form and quantity of the urban transportation system. There exists the very strong need to coordinate land-use development with transportation to achieve efficiency and economy in the use of public funds and to maintain a high quality of life in Santa Clara County.

Many of our problems and much of our frustration in the achievement of such "quality" are the result of a failure to properly and sufficiently coordinate urban development. We exist with a land use/transportation imbalance that is not debatable. Thus one of our primary objectives should be to organize urban functions and facilities into reasoned, efficient, and coordinated relationships. This means that land-uses, necessary or desirable services (including transportation), and interdependent activities should be placed in proper and effective physical relationships to one another. Some of the relationships that should be achieved are:

The location and capacity of sewer, water, transportation, and other systems must be coordinated and related to the development potentials of the lands being served. This means (for example) that high levels of accessibility

Figure - 26

T-2000

Improvement Strategies Recommended For Further Study

CORRIDOR DESCRIPTION	IMPROVEMENT STRATEGIES									
	0	1		2		3	4	5		6
	Baseline Transportation Improvements	TSM/Commuter Lanes*		Bus Improvements		Caltrain Extension	Light Rail System Expansion	Heavy Rail		More Highways
		Basic	Expanded	Bus System Expansion	Busways			BART	Major Caltrain Upgrade	
1- Guadalupe Corridor	☐	●	☐	●			☐			⊙
2- Fremont To Southbay Corridor	☐	☐	●	●			☐	☐		⊙
3- US-101 Corridor	☐	☐	●	●		☐	☐	☐	●	⊙
4- West Valley Corridor	☐	☐	●	☐	☐		●			⊙
5- I-280 Corridor	☐	☐	●	☐			●			⊙
6- Rte. 17 Corridor	☐	●	☐	●	●	☐	☐			⊙
7- East San Jose Corridor	☐	●	●	☐			●			⊙
8- North-South Corridor	☐	☐	●	●			●			⊙
9- South County Corridor	☐	●	●	●		●	●			⊙

* = Basic Transportation Systems Management (TSM) actions are a part of this improvement strategy and also apply to Strategies 2 thru 6

- = Strategy Considered
- ☐ = Recommended For Further Investigation
- ⊙ = Not Studied In Detail, Recommended For Further Investigation

should not be provided to locations where utility or other needed services cannot be provided with reasonable efficiency and effectiveness.

Conversely, land-uses should be arranged and developed in patterns and sizes that are serviceable by transportation and other systems. Most land-uses should be located where they can be serviced by more than one transportation mode and the capacity of adjacent local and regional facilities must not be overburdened by the intensity of the development.

Key locations that are provided with unusual accessibility or some special amenity or service should be developed intensively and in ways that will effectively utilize the services and conditions available.

Extending Urban Development

A second major cause of our existing land use/transportation imbalance has been the reluctance of many to extend the effective limits of our urbanized area. By preserving agricultural land in south county, for example, we have forced development to be concentrated into north county areas which are incapable (from a transportation perspective) of sustaining the intensity of growth which has been (economically) necessitated by artificially inflated land prices. Thus we have perpetuated higher than desired development and a shortage of mixed use.

If we are to retain the good life, more area must be brought within the orbit of metropolitan or urban activity. This is necessary for several reasons. First, space is needed to accommodate the county's continued dramatic population growth. Second, heavy demands on existing, built-up areas must be relieved if they are to maintain an acceptable quality of life. And third, more space must be available for urban development if key natural areas are to be spared for conservation, and if adequate open space is to be supplied.

Thus, a second major objective should be to provide transportation and other systems and services that will make it possible for Santa Clara County to expand to include more land area. The importance of transportation in extending the limits of urban areas is fairly obvious. However, the manner and degree of the extension needed is less well-known. Therefore, in Phase II of Transportation 2000, efforts should be made to determine where and how far urban areas must extend, and to develop systems and technologies that will accommodate the growth required.

Developing Higher Densities

Santa Clara County's difficulty in encouraging higher densities of development in certain key locations has been a frustration to some, a shortcoming to many, and a contributor of traffic congestion to all who have to commute within this marketplace.

Failure to achieve higher densities forces development to spread over much greater land areas, thus increasing travel distances and problems associated with the conservation of unique historic, geologic, or other natural features and open space. It is often observed that only by developing some parts of urban areas to high densities can we afford to keep others at a significantly contrasting lower density. Moreover, higher development densities in areas such as central business districts facilitate face to face contact, intellectual interchange, and the opportunity for individuals of diverse vocation to meet together to exchange ideas.

Thus, a third major objective should be to provide transportation and other systems and services that will encourage and support high densities of development in various parts of urban areas.

Good transportation is, of course, essential to the development and maintenance of high densities. In general, this means that transportation to supplement conventional auto-highway facilities must be available. The cost, inconvenience, congestion, and pollution associated with supplying adequate auto access to high-density areas detract substantially from the desirability of high density areas, positively limit development potential, and often destroy surrounding neighborhoods.

Efforts to develop the new systems of urban transportation identified by T-2000 must find ways of supporting and serving high-density areas without destroying them in the process.

Mixing Urban Development

The separation of different and potentially conflicting types of urban development is a cardinal technique employed to avoid the deterioration of values and the creation of blight and obsolescence. This technique has been carried to the extreme in Santa Clara County and as a consequence, we now have very broad areas of virtually exclusive development, particularly housing and industry. This development pattern increases the separation of the worker from work and tax base from revenue user, factors which both strain the transportation infrastructure.

A fourth and essential objective will be to develop land-use policies and systems of transportation and other services that will encourage and support the mixed distribution of differing kinds of development, including housing, industry, and other employment, education and cultural opportunity.

Summary of Development Objectives

The above four objectives represent some of the key actions that must accompany our county's future transportation investments. If we can achieve or at least move toward these objectives, we will improve the balance between transportation supply and demand and make more efficient use of our limited public funds.

The most important objective is the need to improve land-use/transportation coordination between the county, individual cities, land developers, and employers. We need to recognize that this is not someone else's problem, but it is our own to correct or make worse. Transportation 2000 is a start in the right direction which must now lead toward action.



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